AMATEUR TELEVISION QUARTERLY

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VOLUME 8 # 1
WINTER 1995

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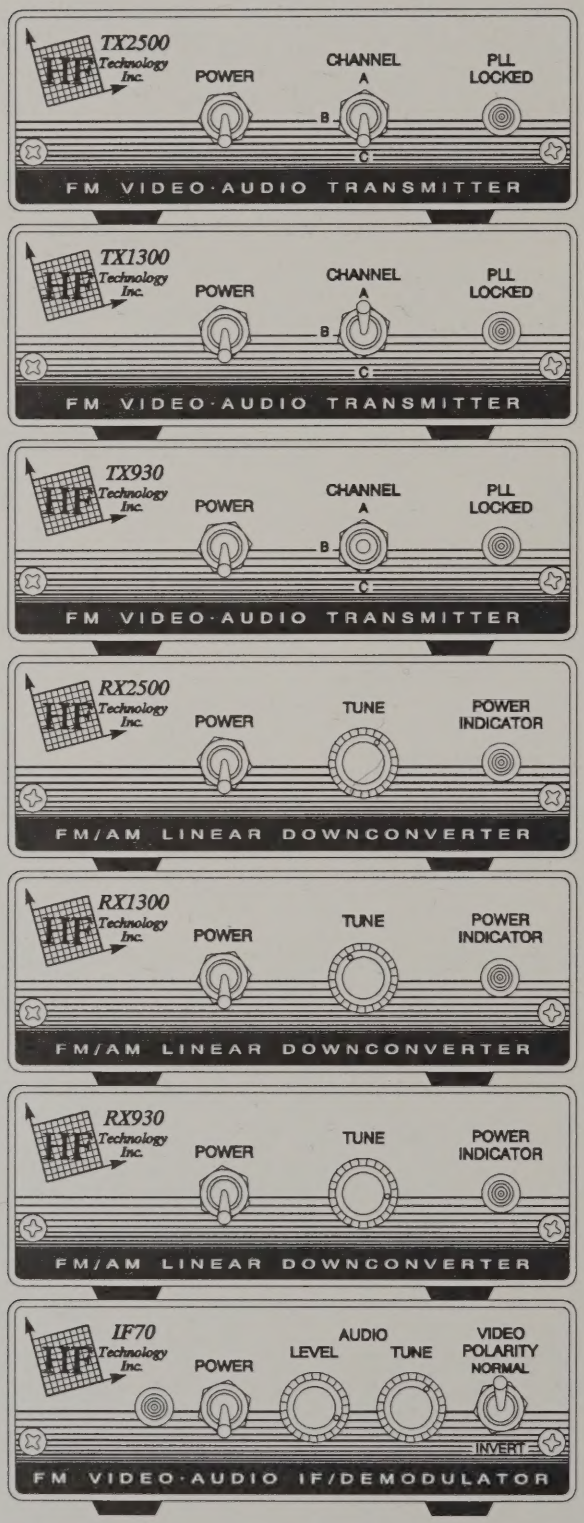

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AMATEUR TELEVISION QUARTERLY

VOLUME 8 #1 WINTER 1995

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NEW AT Q

The new address for ATVQ is 3 North Court Street, Crown Point, Indiana, 46307. This will be the new mail/package delivery point for the magazine. The new phones are: Voice 219 662 6396, FAX 219 662 6991. All should be working by the time this is in your hands.

This issue is late and smaller than usual because both Sylvia and Henry had angioplasty procedures. Sylvia was done on an emergency basis Jan 13th and Henry's as a preventative procedureFeb 15th. Both had a clogged heart artery. Both are recovering well. Next issue deadline is March 25th, and will be out Dayton week.

73's

FCC SUPPORTS HAM ANTENNAS

EXCLUSIVE EXCLUSIVE

In the first document since PRB-1, written by the FCC in support of PRB-1, there is support for ham radio antennas (towers), and outlines the authority of the FCC and also counters most municipal efforts to limit antenna height by stating that the HIGHER the ham antenna, the LESS likely there will be interference to susceptable consumer electronics. Below is the actual text of the letter from Ralph Haller, Chief Private Radio Bureau to the city oif Hempstead (NY). For those with tower fights, or anticipated tower fights, here is a useful document you an present on your behalf.

Board of Zoning Appeals
Town of Hempstead
1 Washington Street
Hempstead, New York 11550-4923

Dear Board Members:

It has come to our attention that the Town of Hempstead's Board of Zoning Appeals (Board) has denied Mr. Hayden M. Nadel's application for a variance permitting him to maintain his amateur radio station's antenna at a height of fifty-five feet (versus the thirty feet permitted by the zoning ordinance). According to the text of the Board's decision (provided by Mr. Nadel), it based its determination largely on its finding that the "proposed and existing antenna height of fifty-five feet" was resulting in interference to the home electronic equipment of Mr. Nadel's neighbors.

Local governments must reasonably accommodate amateur operations in zoning decisions. See PRB-1, 101 FCC 2d 952 (1985) and Section 97.15(e) of the Commission's Rules, 47 C.F.R. § 97.15(e) (copies enclosed). Section 97.15(e) provides that an amateur station antenna structure may be erected at heights and dimensions sufficient to accommodate amateur service communications. Local authorities may adopt regulations pertaining to placement, screening, or height of antennas, if such regulations are based on health, safety, or aesthetic considerations and reasonably accommodate amateur communications. They may not, however, based their regulation of amateur service antenna structures on the causation of interference to home electronic equipment -- an area regulated exclusively by the Commission.

The Commission's jurisdiction over interference matters is set forth in Section 302(a) of the Communications Act of 1934, as amended, 47 U.S.C. § 302(a) (copy enclosed). It is clear from the report of the Joint Committee of Conference, H.R. Report No. 765, 97th Cong., 2nd Sess. (pertinent excerpts enclosed), that the congress intended that the Commission have exclusive jurisdiction over interference to home electronic equipment.

I would also like to point out that there is no reasonable connection between requiring Mr. Nadel to reduce the height of his antenna and reducing the amount of interference to his neighbors' home electronic equipment. On the contrary, antenna height is inversely related to the strength, in the horizontal plane, of the radio signal that serves as a catalyst for interference in susceptible home electronic equipment. It is a matter of technical fact that the higher an amateur antenna, the less likely it is that radio frequency interference will appear in home electronic equipment.

I hope the information in this letter is helpful.

Ralph A. Haller
Chief, Private Radio Bureau

ARRL ATV LIBRARY INCLUDES ATV MOVIES!

1995 ARRL Audiovisual Library

Use of the Library is extended to ARRL-registered instructors and teachers, affiliated clubs and ARRL members. Use is free, the only cost being return shipping. Programs may not be shown for financial gain.

Borrowers agree to:

1) Make requests at least one month in advance, on form EAD-20 or CSD-20. A form can be obtained from the ARRL Educational Activities Department.

2) Indicate the video number. Videos are VHS-format. Public Service Announcements (PSAs) are available in VHS, 3/4-inch and 1-inch formats.

3) Give a street address for UPS delivery. No PO Boxes, please.

4) Request only one selection per month. The large demand for programs makes this necessary so that everyone gets a chance.

5) List two alternate choices and/or dates on each form. Occasionally your selection may be unavailable.

6) Return programs to ARRL via UPS or Registered Mail. Include your return mailing address and retain a shipping receipt in case the package must be traced.

7) When returning programs inform us of any needed repairs.

8) Rewind videotapes.

9) Videos must be shipped on or before the "return" date on the confirmation slip. Failure to do so means you have upset someone's class or club program.

Feel free to make a copy to keep for future use as long as you can meet the return date deadline. You may make the copy available to other individuals or groups through your club library.

New Releases

VT-68 WINNING ON THE HILL. Recounts the N2WK multi-operator contest team. What it takes to pull-it-together and do it. June 8, 1991 VHF QSO Party. Produced by K1JUL for the Rochester VHF Group. [60 min color] VT-69 JOURNEY TO PETER I ISLAND: CLOSE TO THE EDGE. Journey to the most isolated place on earth. 3YOPI DXpedition included 9 men from 4 countries, and nearly 70,000 contacts, Jan 26, 1994. Executive Producer, Sam Brown, WA4IUM. [30 min color]

VT-70 ARRL DIGITAL SIGNAL PROCESSING WORK-SHOP-1993. Instructor, Jon Bloom, KE3Z. [4.5 hr color]

VT-71 FASTNET FORCE SEVEN-1991. EJ7FRL DXpedition to the lighthouse on Fastnet rock, off the coast of Ireland. [1hr color]

VT-72 EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT ANTENNAS...but were afraid to ask. Informative look at how various antenna designs perform. Presentation made at Johns Hopkins University. August 4, 1981. Presenter, Frank Rutter, K3AW (SK). [1 hr 10 min color]

VT-73 AMSAT PHASE 3D. An brief introduction to "the satellite for all radio amateurs." Hosted by Roy Neal, K6DUE and Barry Goldwater, K7UGA. April 1994. [10 min color]

VT-74 MORE ABOUT RADIOS. This program is for recruiting new hams. Great for all age levels. Narrator, M.L. "Gib" Gibson, W7JIE. Copyright 1992. [28 min color]

VT-75 SAREX STS-58 SHUTTLE MIS-SION. Recounts the volunteer and student preparation, and actual Shuttle Amateur Radio EXperiment contact made by students of Cheatham County Schools, TN. October 22, 1993. Narrator, Bob Jewell, AC9R. [45 min color]

VT-PSA ARRL AMATEUR RADIO PUBLIC SERVICE ANNOUNCEMENTS. Includes 5 cuts. Astronaut Linda Godwin :60, :30, :10 and Physicist Joe Taylor :60, :30. December 1993.

Recruitment and Education

VT-40 NEW WORLD OF AMATEUR RADIO. Fast-paced introduction to Amateur Radio. 1987 [28 min color]

VT-62 YOUR HEADQUARTERS AT WORK. An overview of ARRL Headquarters. 1992 [22 min color]

VT-57 GONZAGA PREP. HAM RADIO CLUB SATELLITE COMMUNICATIONS. Watch excited young hams grow and learn with the assistance of a school radio club. 1990 [11 min color]

Satellite and Space Communications

VT-64 HAM RADIO IN SPACE. 1991 [30 min color]

VT-36 SHUTTLE AMATEUR RADIO EXPERI-MENT (SAREX). SAREX on mission STS-51F. [18 min color]

VT-30 AMATEUR RADIO'S NEWEST FRON-TIER. Ham radio and the Shuttle. [28 min color]

VT-1 OSCAR & THE HAM. A classroom demonstration on OSCAR showing principles of Doppler shift and Faraday rotation. [29 min color]

ARRL LIBRARY

Documentary

VT-66 ARRL HEADQUARTERS-1935. This beautifully-mastered silent movie chronicles a day-in-the- life at the American Radio Relay League, 60 years ago. We found this one in the attic! [15 min black & white]

VT-65 VP8SSI: THE SOUTH SANDWICH SAGA. Eight men embark on a daring DXpedition to South Sandwich Island, March 7, 1992. Executive Producer, Sam Brown, WA4IUM; Photographer Terry Dubson, W6MKB; Expedition Team Leader, Tony DePrato, WA4JQS. [25 min color]

VT-61 LAST VOICE FROM KUWAIT. Amateur Radio's involvement in Desert Storm. 1991 [25 min color]

VT-33 DR. OWEN GARRIOTT, W5LFL AT FOOTHILLS COLLEGE. [60 min color]

Emergency Communications Disaster Preparedness

VT-26 AT ANY MOMENT. Disaster preparedness. [14 min color]

VT-38 SURVIVING THE COLD. Courtesy of the American Red Cross. [17 min color]

VT-34 TERRIBLE TUESDAY, TORNADO. Seeking safety from a Tornado. Courtesy of the National Weather Service. [23 min color]

VT-35 HURRICANE. Courtesy of the National Weather Service. [28 min color]

VT-52 DISASTER DRILL: THE BIG ONE. Hams involved in an earthquake drill. 1990 [12 min color]

Amateur Television

VT-53 THIS IS ATV. The how-to of Amateur Television. [30 min color]

VT-3 ATV. A look at applications for Amateur Television. [20 min color]

VT-21 ATV IN GREAT BRITAIN. [30 min color]

VT-22 ATV IN AUSTRALIA. [30 min color]

Field Day

VT-2 FIELD DAY FEVER. [25 min color]

Instructional

VT-59 CORRECTION OF INTERFERENCE TO TV DUE TO SATURATION OF RF CIRCUITRY. The FCC gives you an understanding of some of the easier RFI cures. 1992 [18 min color]

VT-37 PACKET RADIO PRIMER. [30 min color]

VT-50 WHAT ARE THOSE CRAZY SOUNDING SIGNALS SAYING? Introduction to digital communications, including Morse, packet, RTTY and AMTOR. 1990 [20 min color]

VT-23 SIGNAL TO NOISE STORY. [30 min color]

VT-32 NORTHERN LIGHTS. Interesting facts about auroras. [27 min color]

VT-63 SPARK GAP. A brief history of spark gap. 1992 [60 min color]

VT-20 WIRE ANTENNAS. [30 min color]

Handi-Ham

VT-56 MAKING CONTACTS, MAKING FRIENDS. Some personal stories from Courage Handi-Ham Center. 1991 [25 min color]

VT-60 COURAGE IN THE NORTH, HANDI-HAM RADIO CAMP. All about the Handi-Ham Camp. 1992 [10 min color]

Operating Events and Contests

VT-28 ALL CHINA AMATEUR RADIO DIRECTION FINDING COMPETITION. Chinese hams compete in DFing as a sporting event. [30 min color]

SPECIAL ANNOUNCEMENT

Mike Collis, WA6SVT, is engaged, oh my, does that mean no more trips to the mountain tops in the middle of the night? Mike met his fiancee, Natasha, while on vacation to Europe this summer. Natasha has a daughter, Victoria, that just turned 3 years old this month. Mike will have a new life style to get used to soon. Congratulations, Mike and Natasha! Well, there goes the ATN Repeaters and Henry's antenna help!

ARRL RESPONSE TO ATV INQUIRIES

The ARRL has a nice letter about ATV which we have reproduced below in its entirity. This is a good item that you can use to recruit new ATV'ers or help explain ATV at club meetings, demonstrations, etc.

Smile—You're on Ham Radio!

Wouldn't you love to own and operate your own television station? With the equipment available today, you can set up your own Amateur Radio TV station cheaper and easier than ever before!

Brian Battles, WS1O, QST Features Editor
Steve Ford, WB8IMY, Assistant Technical Editor

Imagine having on-the-air conversations with hams you can actually see. When they smile, you'll see them smile. When they wave, you'll watch them wave. If they have a new gadget to show you, you'll see it operate firsthand. Does this sound incredible? For hams who operate fast-scan amateur television (FSTV), it's an everyday occurrence!

Fast-scan amateur television is better known among hams as simply ATV (although the term ATV also applies to slow-scan TV). ATV is enjoyed by anyone with a ham license. Novices, for example, have ATV privileges from 1270 to 1295 MHz. Hams licensed at the Technician class or higher enjoy the most flexibility. They have full access to all amateur frequencies above 50 MHz, and most ATV activity is concentrated in the 420-440 and 902-928 MHz bands. If you're able to take advantage of these privileges, you'll have a great time with television.

What Can You Do with ATV?

We could fill several pages listing all the possible applications for ATV. Here are just a few to tickle your imagination:

Show videotapes of your DXpedition or your club's Field Day effort.

Show off your latest project.

Transmit video images of your computer satellite-tracking program or other software.

Display your DX QSL cards.

Transmit a videotape of your new car with detailed views of the interior, engine and so on. (No one says the content has to relate to Amateur Radio!)

Mount an ATV transmitter and camera in a balloon, a radio-controlled model airplane, car, boat or rocket.

You can transmit just about anything on ATV, as long as it isn't affected by copyright laws or FCC prohibitions against using Amateur Radio for business purposes. For example, you can't tape a television program and retransmit it on ATV. If you're a real estate agent, you can't show pictures of the homes you have for sale on ATV. There are also prohibitions against transmitting video with music or obscene content.

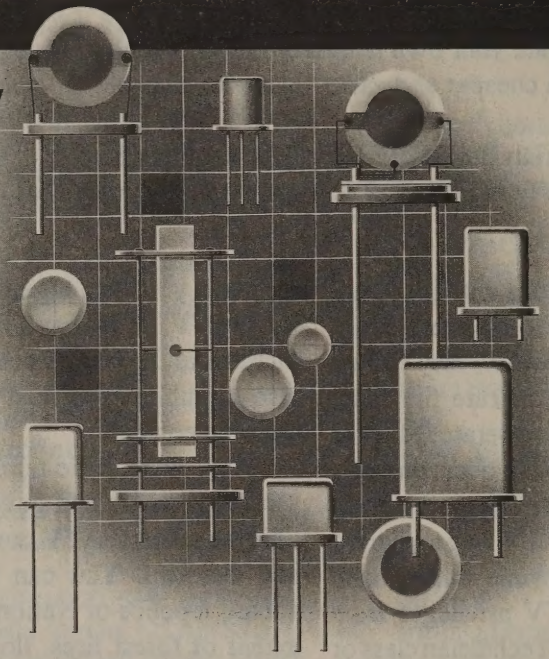
ATV has terrific public service potential. Local public service agencies and government emergency preparedness offices welcome ATV coverage of community events, drills and disasters. You can take your portable ATV station aboard a police or National Guard helicopter to survey the extent of forest fires, floods and storm damage. Parades, walkathons, bicycle races and other outdoor activities can be supported by skillful placement of mobile ATV units.

ATV-equipped weather observers can aid National Weather Service officials by showing them live images of storms or tornadoes. Some ATV clubs have linked their ATV repeaters with National Weather Service radar. When severe weather threatens, hams throughout the community can watch the development of approaching storms.

Do you have a taste for the exotic? How about mounting a simple camera, transmitter and associated electronics in a compact package and launching it as the payload beneath a helium balloon? ATV balloon flights have become popular in recent years. Balloon experimenters have amassed thrilling videotapes recorded from the received signals of ATV payloads carried to the edge of space, more than 100,000 feet up! The view from an altitude of 20+ miles is breathtaking!

Closer to the ground, hams combine hobbies by controlling their radio-controlled aircraft, boats and cars with a pilot's-eye view monitored from a camera installed in their miniature craft. Amateur rocketeers mount ATV equipment inside model rocket nosecones for a rapid ride up to several thousand feet, watching the world recede beneath their "eye in the sky."

CUSTOM CRYSTALS



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Designed specifically for amateur television in the 70cm band...

FL407 INTERDIGITAL FILTER

7-Pole Interdigital Vestigial Sideband Filter for Frequency Ranges of 420 MHz to 440 MHz

Ordering Information: The FL407 may be ordered on any frequency between 420 and 440 MHz. Please specify video carrier frequency when ordering.

Dimensions HWD:
2 1/8" x 8 13/16" x 20 5/8"

The 6 MHz nominal bandwidth and low loss design are perfect for transmitter or receiver use. Two filters can be used for repeater applications.

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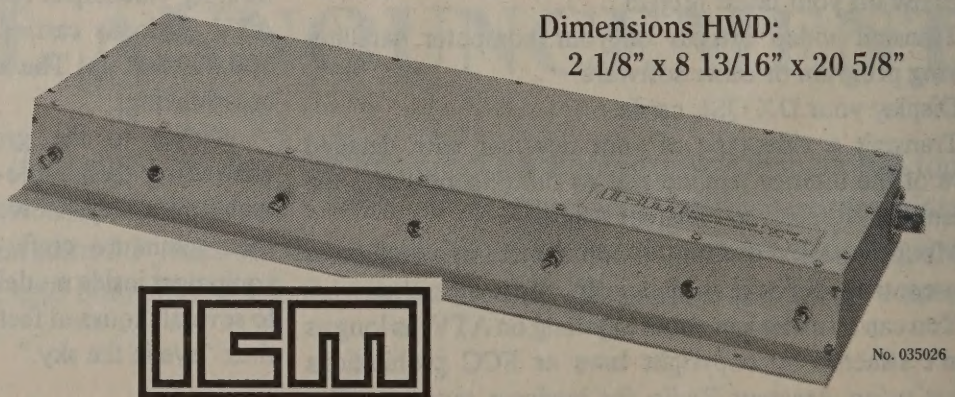

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Get a Glimpse of ATV

In any given month, at least one or two ATV experiments are conducted somewhere in the US. Perhaps you'll be close enough to watch the fun! From spring through autumn, ATVers launch high- altitude balloons and rockets whose transmissions you can receive by using inexpensive ATV downconverters. Downconverters receive ATV transmissions and convert them to commercial VHF television signals you can tune on any TV. Some portable LCD TVs can tune ATV signals directly, but most lack the sensitivity to provide sharp, clear images.

Packet bulletins and HF nets are excellent sources of information about major operating events. Regional ATV nets meet Tuesday evenings at 8 PM Eastern Time on 3871 kHz and Sundays at 10 AM Pacific Time on 7243 kHz. Check into your nearby packet bulletin board (PBBS) and scan through the mail for ATV announcements. If you don't find any, post one yourself, asking whether anyone in the region is an active ATVer. You may be surprised at the responses you receive.

Although special-event operations are exciting, you can also tune into regular ATV activities. You may find stations communicating to each other directly or stumble across an ATV repeater. Like voice repeaters, ATV repeaters relay signals over wide areas. The ATVers in your community can tell you the best frequencies to monitor.

Getting Started

At first glance, ATV seems like a costly activity. If you use broadcast television stations as your guide, you're looking at a substantial investment for transmitting gear, video monitors, cameras, sync generators and so on, right?

Unless you choose to set up the ultimate station, ATV is very affordable. If you happen to own a typical home video camera or camcorder and a basic TV set (black and white is fine), you can purchase a new ATV transceiver for about $300 to $400. Add perhaps $75 for a reasonable antenna and a few dollars for cables and miscellaneous odds and ends. You can get your TV station on the air for less than $500—and that's if you insist on new equipment. You can build your own from scratch or from a kit, or buy inexpensive used gear. With a little resourcefulness, you may be surprised to find yourself the proud owner of a television station for an investment of $100 or less.

Antennas, Amplifiers and Preamplifiers

All amateur fast-scan television (FSTV) is on UHF and microwaves, so high-gain antennas are relatively small and easy to manage. A high-gain, multielement Yagi for 434 MHz is typically 5 to 10 feet long and gives you a big boost on transmitting and receiving.

If there's an ATV repeater close by, a simple 2-foot, 3-element Yagi may be adequate. Check the ARRL Repeater Directory\1/ and talk to ATV operators in your town. Find out where the repeater is located and how sensitive it is. Assuming that you can receive a strong signal from the repeater—and assuming the repeater can hear your signal—a UHF groundplane antenna may be all you'll need.

When choosing your ATV antenna, don't forget about polarization. Most antennas used in ATV applications are horizontally or vertically polarized. Yagi antennas, for example, can be horizontal or vertical, depending on how you mount them. Groundplanes, on the other hand, are vertically polarized.Using the proper polarization is important. If you're vertically polarized and the station you're talking to is horizontally polarized, you'll both experience a noticeable loss in received signal strength.

So which antenna polarization should you use? It depends on the ATV activity in your area. If you intend to operate through an ATV repeater, vertical polarization is best because most repeaters use vertically polarized antennas. For direct contacts—or ATV DXing—horizontal polarization is the standard. Some antenna manufacturers allow you to enjoy the best of both worlds with dual-polarization antennas. These are basically two Yagi antennas mounted on the same boom. One is in the horizontal position and the other is vertical. An antenna switch (often remotely controlled) is used to select one antenna or the other.

In marginal areas, a receiver preamp mounted at the antenna can be a big help (it's probably a good idea no matter where you live). If you have a powerful TV broadcast transmitter nearby, you might have to add filters to keep the commercial station from overwhelming your receiver.

If you aren't within a dozen miles or so of an ATV repeater, think about adding a power amplifier to your station. Most typical ATV transmitters put out 1 to 10 watts, and boosting that to 50 or even 100 watts can extend your range substantially.

You're on the Air!

How do you call CQ on ATV? If you want to be informal, just sit down in front of the camera and make yourself comfortable. Activate your transmitter and say, for example, "This is KY1T in Newington, Connecticut. Anyone around?"

Switch back to the receive mode and wait for a response.

Another approach is to broadcast an image of your call sign for several seconds while announcing your invitation. Your call sign should be large enough to fill the entire screen. Bold, black letters on a white background will make it easier to read at greater distances. Include your 2-meter coordinating frequency (more about that shortly). Computers or character generators can also be used to create attractive ID screens. Let your imagination be your guide!

You can establish contact with another station on a single frequency (simplex) or use an ATV repeater with separate input and output frequencies (duplex). The same operating procedures apply in either case. ATV repeaters transmit identification beacons (usually brief transmissions consisting of their call signs and creative graphics) to help you find them. These IDs are often transmitted at regular intervals (on the hour and half-hour, for example). When you transmit, the beacon will disappear and your video signal will be relayed through the system. When you stop transmitting, the beacon returns.

When you finally establish contact, the first order of business is to exchange signal reports so that each of you knows how well your signals are being received. ATVers use the "P" system to describe the amount of noise (or snow) in the picture. A P5 picture, for example, is the best image possible with no visible noise. A P1 picture is very weak with a great deal of noise.

The 2-Meter Connection

In many areas of the country, it's a popular practice to use a 2-meter FM simplex frequency or a repeater for local ATV coordination. This allows ATVers to make adjustments while transmitting. Because mutual interference between the 2-meter and 420-MHz equipment is minimal, ATVers can get immediate comments on their signal quality and make additional adjustments as necessary.

Many enthusiasts call CQ on 2-meter FM and 70-cm ATV simultaneously. This technique is effective in attracting the attention of local operators who may be monitoring 2 meters while their ATV equipment is inactive. If ATV coordination is taking place on 2 meters in your area, try to find the frequency. (144.34 and 146.43 MHz are popular.) By listening to the chatter, you'll get a pretty good idea of how many ATV stations are on the air, where they're located and when they're active. *[ED NOTE, a listing of local 2 meter frequencies is in ATV Secrets Vol I and II]*

ATV DXing

There is more to ATV than chatting with your local friends. You'll also have opportunities to enjoy QSOs with ATVers hundreds of miles away. It doesn't happen every day, but when it does, ATV DXing offers genuine excitement!

If you plan to work ATV DX via direct, single-frequency contacts, you'll need to invest in the best equipment you can afford. Antenna mounted preamplifiers are mandatory, as are RF power amplifiers and low-loss coaxial cable or hardline. Some ATV DXers use a single, high-gain Yagi antenna (horizontally polarized). Others use several Yagis working together in a carefully designed array Arrays are capable of the high performance required in DX applications.

You can work DX through your local ATV repeater. When the band is open, many ATVers attempt to reach repeaters in distant locations. Don't be surprised if you call CQ on your repeater one evening and receive a reply from an ATV DXer!

The best times for ATV DX are around sunrise and right after sunset. If your family TV is connected to an outside antenna, tune through the commercial UHF channels. If you see distant stations, especially on channels 14 through 30, a band opening may be in progress!

Start Exploring!

If you can get your hands on a downconverter and a Yagi antenna, you'll be watching local ATV activity tonight! If you're reluctant to invest in equipment now, contact the ATVers in your area. Many ATV clubs will loan equipment to get you started. If nothing else, you can visit an ATVer'sstation and watch the fun in person.

Check the ATV "Resource Guide" for more information and addresses of ATV equipment manufacturers. Once you put together an ATV station and get on the air, you'll be hooked forever!

Notes
Affordable Video Cameras

The next time you're at a hamfest, look for a used closed circuit TV (CCTV) camera. Most of these cameras are black and white and they're great for getting started. Used CCTV cameras are often sold for as little as $30, depending on their condition. If you buy a used CCTV camera, be prepared to do a little work. You may have to build a special power supply or troubleshoot a few problems. Even so, if you purchase a camera that's in decent shape, you'll be on ATV at a bargain price!

A camcorder can also be used for ATV. Prices have been falling in recent years and camcorders are showing up on the used equipment market. A camcorder is one of the few items in your ham shack that has plenty of value for non-ham family activities. This may make it easier to justify the purchase.-WB8IMY

ATV Resource Guide
Periodicals

Amateur Television Quarterly—1545 Lee St, Suite 73, Des Plaines, IL 60018,
tel 708-298-2269. $18/year US, $22/year Canada $29 DX

The SPEC-COM Journal—PO Box 1002, Dubuque, IA 52004, tel 319-557-8791.
$20/year US, $25/year Canada

Books

ATV Secrets Volume II—Published by Amateur Television Quarterly, 3 N Court St., Crown Point, IN 46307. Topics include RF and video filters, downconverters and preamps, power amplifiers, transmitters, special effects and much more. $24.95 plus $2.90 shipping ($4 Canada). [ATV Secrets Vol I a guide for beginners is $9.95 + 2.50 post.]

Equipment

Advanced Electronic Applications Inc, PO Box C2160, 2006 196th St SW, Lynnwood, WA 98036-0918 tel 206-775-7373, fax 206-775-2340.

Communication Concepts Inc, 508 Millstone Dr, Xenia, OH 45385 tel 513-426-8600.

Down East Microwave, Box 2310 RR1, Troy, ME 04987 tel 207-948-3741

Elktronics, 12536 Township Rd 77, Findlay, OH 45840 tel 419-422-8206.

Micro Computer Concepts, 7869 Rustic Woods Dr, Dayton, OH 45424 tel 513-233-9675.

Micro Video Products, 1334 S Shawnee Dr, Santa Ana, CA 92704 tel 800-473-0538 or 714-957-9268.

PC Electronics, 2522 Paxson Ln, Arcadia, CA 91007-8537 tel 818-447-4565, fax 818-447-0489.

Tactical Electronics Corp, PO Box 1743, Melbourne, FL 32902 tel 407-676-6907, fax 407-951-4630.

Wyman Research Inc, RR #1 Box 95, Waldron, IN 46182 tel 317-525-6452.

[ED NOTE: AEA no longer makes the VSB-70 or their other ATV equipment. Other sources include:
ATV Electronics, 16807 N 46th Lane, Glendale, AZ 85306,
Pauldon Associates, 210 Utica St., Tonawonda, NY 14130,
HF Technology 457 Santa Fe Trail, Cary, IL 60013]

CQ DX FOG ...
REPORT FROM COLUMBUS, OHIO
DEC. 26, 27, 1994

Wilbur - K8AEH
Columbus, Ohio

Twas the day after Christmas, and all the excitement is over! We thought. It's Monday, good day to sleep till noon at least. However there may be a little something you have to do first. So its out of bed one eye open as you make a momentary stop in the bathroom, on the way to the kitchen. With a fresh cup of coffee in one hand, and a piece of toast in the other, for no reason at all you make your way to the front door. Standing there in your bare feet, and your nose pushed up against the cold glass you open your other eye, and wow!!! What is this... P3 fog, this can only mean one thing, could this be the lucky day? When the light pole down the street is no longer visible... That's P5 fog for sure. Just to check it out, you push open the front door, bare feet and all, to see if you can still see the top of your 70 foot tower. Oh! No! Did someone borrow the antennas while we was a sleepin, or is the top of the tower really disappearin in the fog. This is gettin excitin! Anyone who ever worked ATV DX before knows. After standing there in the cold too long, gazing up with your neck all bent back, can cause a person to start seeing things that may or may not really exist. Like strange call signs darting around through the fog. Look at this, they are starting to line up, trying to get in the antenna... Better get back in the house, el quicko.. Tough decisions to make. Time to build a fire in the bottles. The fun has begun! You start turning knobs and throwing switches, even the ones you use to know what they were really used for.

Sure enough the guys in Dayton, Cincinnati and Indiana were already into it with Michigan, Illinois and Wisconsin. Later the fog really started rollin in and the band was open.

The P1 signals started turning into P3 P4 and even out of state P5. Around 11pm it was qrm on 439.25 ATV. Just turn the antenna almost any direction and there were signals, all over the place. KA3 from Pittsburgh,PA. W4's out of Wheeling, West Virginia from the East. WB0's from Missouri K5's from Arkansas, N9's out of Chicago,IL and WJ9'w from Milwaukee, Wisconsin. What a day this has been, and it was getting even better, there were so many stations you couldn't work them all. There was so much excitement, you had no idea when you ate last, and it's been so long since you had to go the bathroom it doesn't seem to make any difference anymore.

The two meter volume is wide open so you won't miss anyone calling you in the pileup. This went on all day through midnight till past 4:00 am in the morning. A lot of the camera film was wasted on P1 and P2 pictures while the band was just starting to get hot, having no idea it would be getting better later. At 3:00am in the morning, where do you get more film?? Well I can assure you one place I highly do not recommend! That's from Wifey.. The XYL's name is Joy, however, at 3:00 am in the morning you best change that to "sweetheart" ifin you ever want to work any more atv dx in this lifetime. So we sneaks into the bedroom and started to shakin the bed and callin out "sweetheart" i need film bad.

I can assure you that was one big mistake. As soon as we detected some movement, we backed up about 3 feet and glad of that. Wifey came up out of that bed like a rocket headin fer outer space, sounded like she hit her head on the ceiling. I knew better than to stick around and find out, for I was hot footin it down the hall, and she was right on my heels, preachin words from a dictionary I never new existed, and definitely can't repeat. After three passes thru the kitchen and two more thru the living room she finally came out of the shock of being rudely awaken. I said please hun! All I wanted was more film. She yanked open the hutch drawer and threw her camera at me. It went off when I caught it, now only two shots left, better than nothing. After Wifey sound tested the bedroom door, we photographed and worked two more michigan stations before going to bed at 4:30 am..... Z Z Z Z Z Z Z.

W h a t--a--d a y this ATV DX'in could make a guy tired!

Just to kind of assure you we know what DX-in is all about we run a full 1KW on 439.25mhz. ATV with a pair of 4CX250b's with its own video and audio modulator. Driven with a 50 watt 2C39 exciter. The antenna is an 88 element J beam at 70 ft. And dual two stage Gasfet preamp.

CQ DX FOG ...
REPORT FROM COLUMBUS, OHIO
DEC. 26, 27, 1994

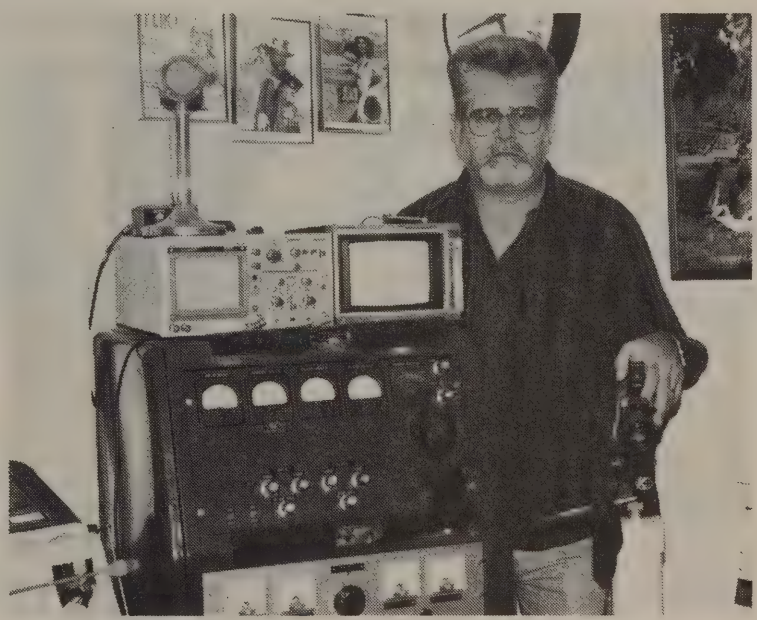
NEW WORLD LAND DX RECORD!

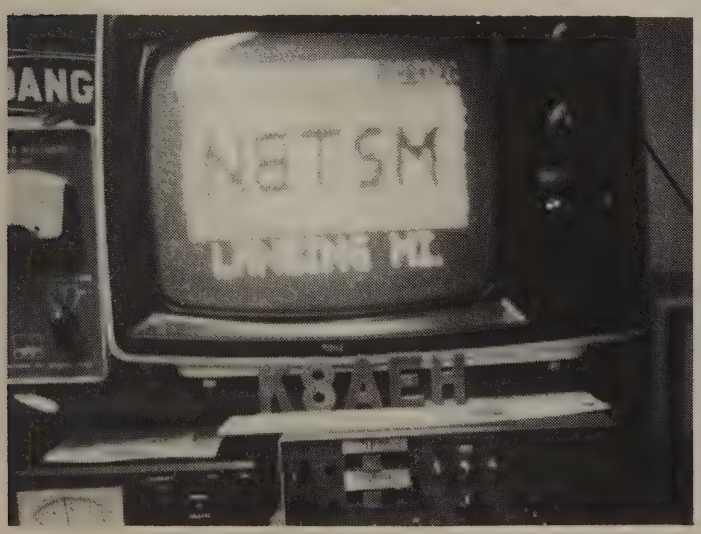
Some out of state stations worked!

WJ9Z	St.Francis Wis.
K9SM	Hillsboro, Ill.
N9AB	Mundelein, Ill.
W9MHZ	Fort Wayne, Ind.
AA9IG	Peoria, Ill.
KA9TGX	Lafayette, Ind.
N9LBN	Milwaukee, Wis.
W9NTP	Waldron, Ind.
K5YWL	Harrison, Ark.!!!
KA9VXS	Lafayette, Ind.
KA3IBD	Saegertown, PA.
WB0ZJP	St.Louis, Mis.
N8TSM	Lansing, Mich.
KA8VSV	Detroit, Mich.
KA3FZF	Monroeville,PA.
N8AW	Jackson, Mich.
W8AHY	Lansing, Mich.
W9LPR	Milwaukee, Wis.
WD9ASI	Chicago, Ill.
N8TBM	Lansing, Mich.
WA4GSS	Ashland, Ky.
KA8VSV	Wheeling, W.Va.
K9SM	Hillsboro, Ill.

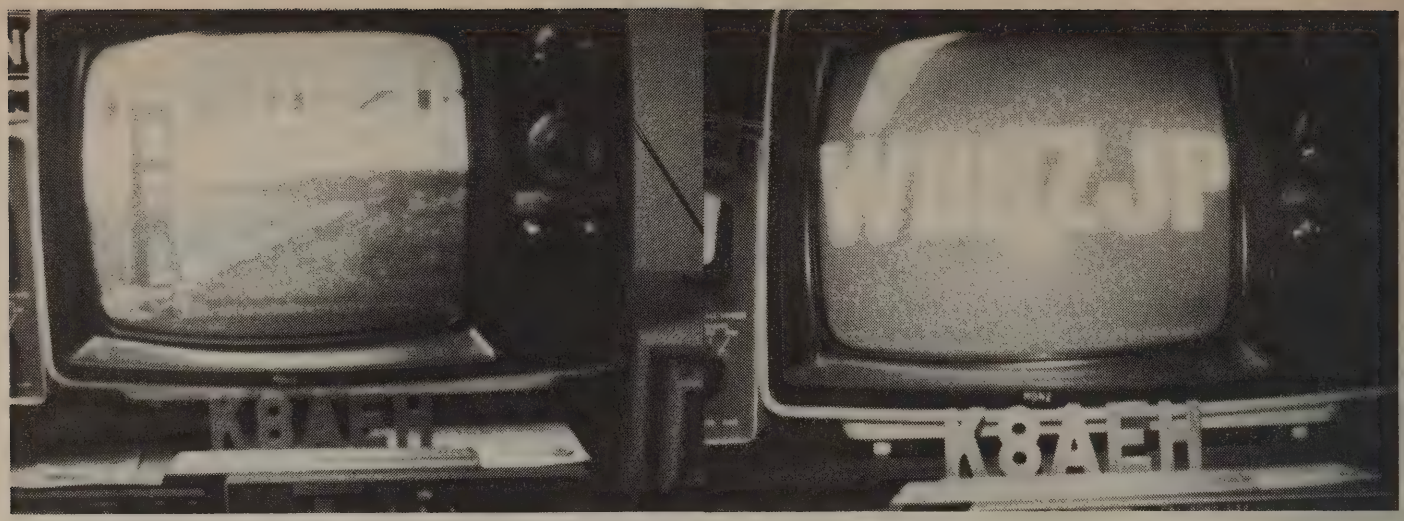
The contact between K5YWL in Harrison AR (just south of Springfield, MO) to K8AEH, near Columbus, OH is over 628 miles. This is a new land path ATV DX record. CONGRATULATIONS!

A Contact between WB0ZJP in O'Falloin, MO (west of St. Louis) and KA3FZF also broke the previous record between W0IMA in Moscow, IA and W3POS in Eria, PA. and KB9FO Des Plaines, IL and W2RPO (SK) east of Buffalo, NY. see map.

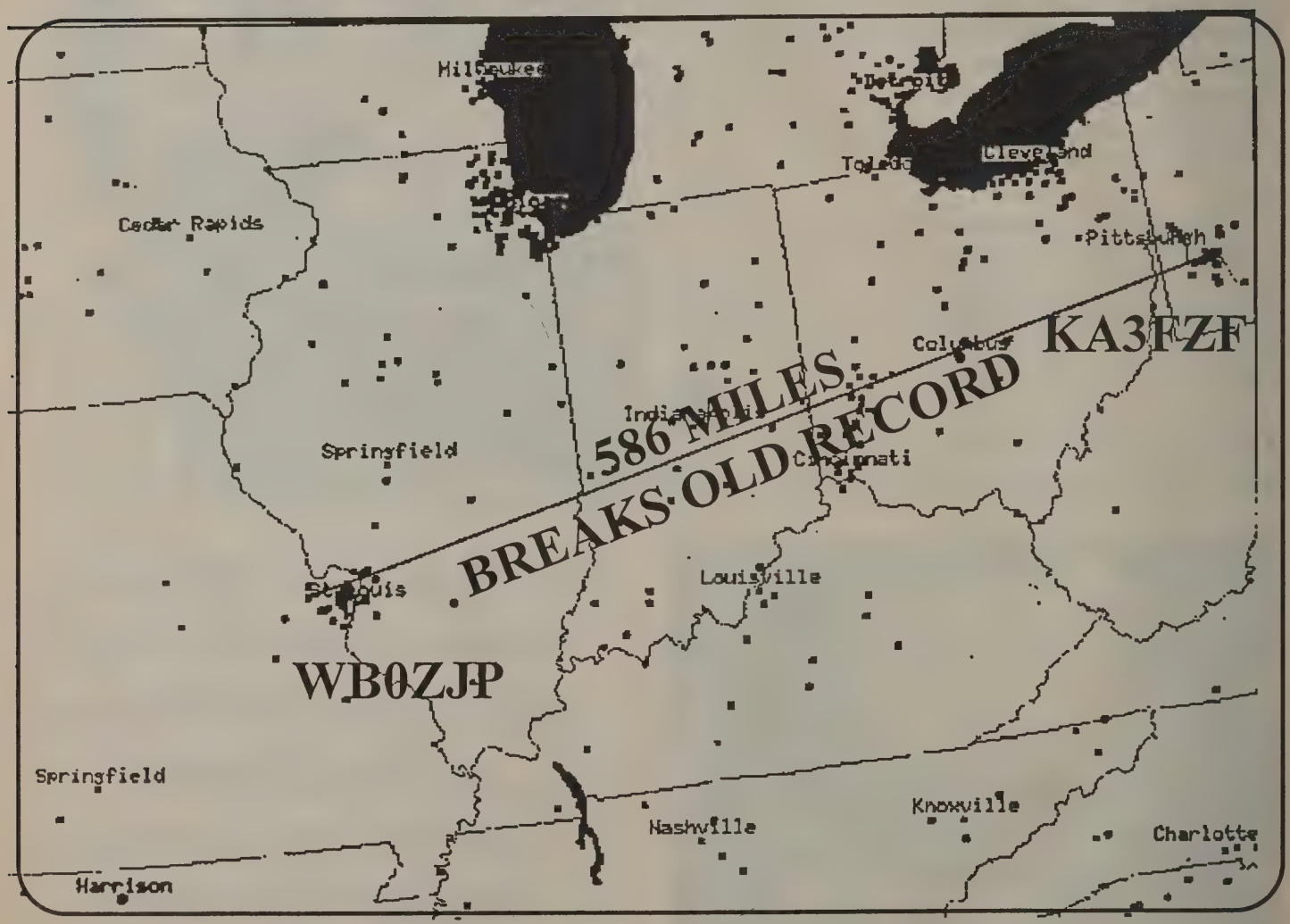




628 mile land DX record between K5YWL and K8AEH This is also the first Arkansas to Ohio ATV path. Also this band opening WB0ZJP in Missouri to KA3FZF in Pennsylvania



Record breaking DX over all land, WB0ZJP and KA3FZF 586 miles.



New world record over land ATV DX between K5YWL and K8EAH
old record between WB0IMA and W3POS also shown.

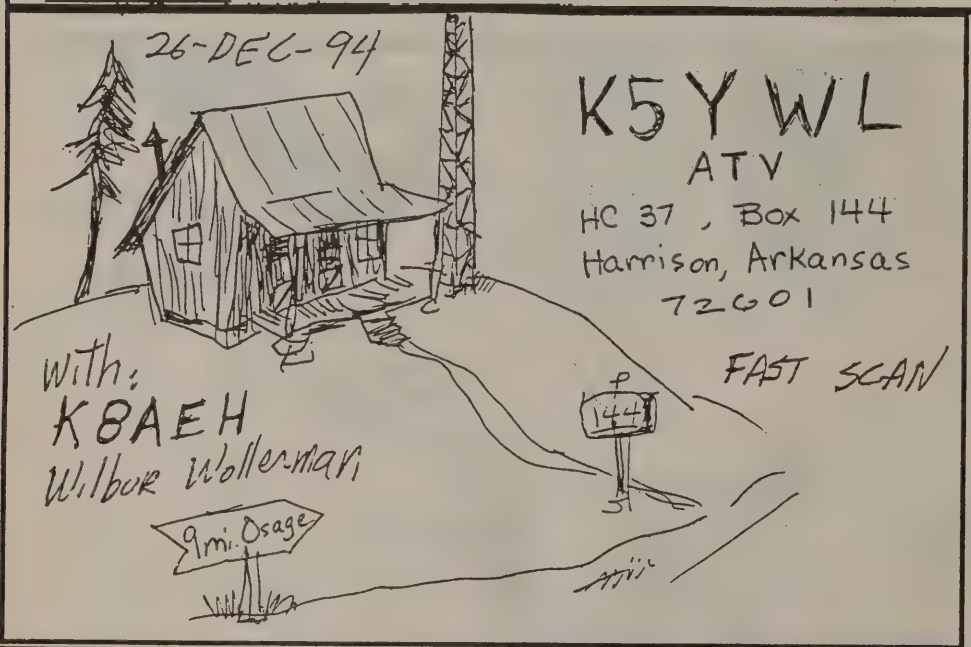
Historic ATV DX record QSL cards

REYNOLDSBURG, OHIO
1672 Rosehill Rd. 43068

K8AEH

-AAF8AEH-

Radio K5YWL Confirming QSO of 12-26-94 at PM E.S.T.
Ur 439.25 Mc. ~~Fone~~ ☐ CW ☐ Sigs RST P4 Ant: FAST SCAN TV. J-BEAM 20' TOWER
Xmtr: 4CX250B 1 KW Rcvr: 2 STAGE GASFET PREAMP
Remarks: TNX FER FAST SCAN FROM ARKANSAS
☑ Pse QSL Tnx ☐ 73, Wilbur L. Wollerman
W8WRN PRINT TNX ELMO



Harrison, Arkansas K5YWL

Confirming QSO WITH | Day | Month | Year
K8AEH - 10M E. Columbus OH | 26 | 12 | 94

~~UTC~~ | MHZ | ~~BST~~ | 2-WAY | QSL
439.250 P4-P5 | | | TNX

100W | PLE 10W FOR
Mirage |
Quad ARRAY FOR ATV
76' above 2200'

HC 37 Box 144
Harrison, AR 72601
73, Elmo Knoch

You can do it too! Any reasonable station can work DX with 100 watts and a good anternna and a band opening! Upgrade today! Remember a preamp and good coax are essential!

FLIGHT OF THE HAMFEST

The Lake County Hamfest is an annual event held on the first Saturday of each November. This Hamfest is medium size for central Florida and draws between 800 and 1200 attendees, which is just the right size to be able to see everything and still have time to visit with friends.

This was our third year to put on an amateur television (A.T.V.) demonstration and we wanted it to be awesome, different from the past two years. So, months ahead of time we talked about it on our Wednesday night net trying to decide just what would make a good show. We thought about video tapes of past events, . . . video tapes of our shacks, . . . two way transmissions, . . . displays and charts, . . . but nothing seemed quite right. Slowly, the idea of a balloon flight began to drift into our minds, but here in Florida, being a peninsula, we were sure to loose our cargo to the ocean. Oh, what to do/ Ah-ha! Why not tether a balloon over the tailgate area at about 200 feet and transmit back to the A.T.V. table! Yes that was it!

The plan went together swiftly - You get the balloon; Someone get the batteries; I'll contact a car dealer to donate the helium. Wow! This was too good to be true, it was going to work! Out best camera was secured (from Carl K4IDL) and a 125 mw transmitter board ordered from an ATV supplier. Soon the parts came together and got mounted in a styrofoam box which was reinforced with duct tape. The power connections were left on the outside so we would be able to change batteries in a hurry. A 1/4 wave groundplane was built and mounted to the top of the package, and the camera looked out the bottom. No problem was overlooked. It was going to happen after all.

A week before the Hamfest we benchtested the unit, and, with only 125 mw of power our receiving station 1/4 mile away got a P-5 picture! Other stations up to 10 miles away got sync. Now all we had to do was gather the flight hardware and we were ready for the big day.

It was a nice bright, friendly day for the Hamfest, not too hot, not too coo. Just the type of day you would hope for but never expect to get. We planned to arrive early, but as usual we got there about an hour late. No problem, the event didn't start for an hour, and besides that we figured launching the balloon would be fun for all to see.

We set up our receive station, got the monitors going and VCR's ready to record. Then we erected the antenna (which was larger than need be) but this was all part of the showmanship aimed at impressing our fellow Hams.

Now, it was time to assemble the package and attach a battery for one last test. In doing so we promptly broke off an antenna element which we had to solder back on. We then proceeded to walk around the Hamfest transmitting a picture back to net control. Everything worked perfectly and we were ready to inflate the military surplus weather balloon.

This little chore was started by two of us. As the balloon increased in size we found ourselves yelling for help. For now, the seemingly quiet breeze felt more like a 50 mile an hour gale while holding an 8 foot helium balloon. The helpers came and the package was secured to it's holding strap. A new set of batteries which I had never seen before (two 6 volt gel-cells) that weighed 3 pounds apiece were taped to the package . . . The balloon wouldn't lift off the ground . . . So, some quick work with a knife and a single 12 volt battery that weighed about a pound and a half was secured. The people inside told us we had a signal. We knew we were ready to go. We attached two tethers (just in case). By now we had a full set of watchers, both inside and out, it was time to launch!

5-4-3-2-1- when we released the balloon it rose very slowly, too slowly, We realized the weight of the heavy ski-rope was the culprit so we removed it, leaving only one line.

Now the balloon rose up- up- up over the main pavilion, clearing it's way to the sky - excited voices inside told us the picture was coming back! We were experiencing our first successful launch! We were like proud fathers, it was our moment of glory. Hurriedly, we ran back inside to see the fruits of our labor. We saw before us a perfect picture of the fairgrounds below. It looked as though being taken from a helicopter spinning wildly out of control and about to crash. We chuckled and agreed that a counterweight or sail would have to be added to dampen the movement of our camera.

The wind picked up a little causing the balloon to dance around giving us dizzy pictures of the earth below. By this time the novelty had worn off and the Hamfest returned to its normal activity with just a few diehards watching the monitors. Somebody realized that we were not video taping the downlink. We corrected that situation and were merrily on our way to enjoying the day.

After about 2 hours it was reported that the balloon was blowing down very close to the ground and the signal was weakening. So we decided to reel it in and put on fresh batteries. Two of our expert rope pullers tackled the job. As they pulled in more and more rope the balloon began wildly oscillating causing it to almost crash into nearby objects. Then the call came that the balloon was down! That it had landed in a small field on the side of the building. At that time our crew ran around the building to retrieve it only to fine that the balloon was airborne again. At which time they began pulling wildly on the rope. All they got was its frayed end!! By now the balloon was about 500 feet with no rope! The shouting began in earnest and people were pointing skyward at the rogue escapee. The Balloon was free! It was getting away as we watched. It grew smaller and smaller in the sky and there was a panicked attempt to send out a rescue crew.

With no time to coordinate our efforts, we had to use the talk-in frequency for the Hamfest (that went over great hi hi). After several minutes of driving they asked us how things were going. We told them that the truck was still on the ground and the balloon was about 2500 feet! We watched and yelled at it a lot but the balloon kept getting smaller and drifting further to the north, we figured it would go about as far as the Florida/Georgia State line. All we could do was return empty handed and face the music.

The hams took it in good spirit. They offered us both their congratulations and condolences and threw in a lot of kidding and heckling for good measure. We then heard a commotion in the tailgate area and turned to watch. Everyone look skyward again. This time they were watching a commercial airline banking hard left to avoid our balloon, everyone cheered when the plane made it by. Now we knew that our efforts have not gone unnoticed, not even by the pilot. Steve Eshom AC4KN

A WORLD WIDE EMERGENCY COMMUNICATION PROJECT

Dear Fellow Hams:
My name is John Hart, N0OCF, Denver, Colorado.
I have begun a full-time, public service project that I think you'll be interested in knowing about. I hope you'll take time to spread the word. I have enclosed a brief press release below that describes the project. After reading it, if you would like to receive the weekly bulletins regarding this project, please send your e-mail address to jhart@teal.csn.net, with a message in the subject or body "SEND E-COMM BULLETIN." Thanks for taking time to read this e-mail, and for your support.
—JH

PRESS RELEASE

From: E-COMM — A Public Worldwide Emergency Communications Center
Date: For Immediate Release
Contact: John Hart, 303-987-3246; Internet: jhart@teal.csn.netCIS 71044,2446 AOL: fyihart

A PUBLIC WORLDWIDE EMERGENCY COMMUNICATIONS CENTER IS LAUNCHED

E-COMM Links Amateur Radio Operators and The Internet For The First Public Worldwide Emergency Communications Center (LAKEWOOD, CO USA) January, 28, 1995—Plans for the world's first public emergency communications center have been launched by long-time amateur radio operator, John Hart, N0OCF.

The short name for the communications center is E-COMM, and its purpose is to link amateur radio operators worldwide with the Internet, to expedite emergency communications between disaster victims and their family and friends.

Mr. Hart, who has been an amateur radio operator for 38 years, has launched the nonprofit organization, E-COMM, Inc., to fund the construction of the Colorado facility. "The concept of E-COMM is simple: if you are in a city where disaster strikes, or you are experiencing an individual emergency, E-COMM's network of radio operators and Internet volunteers will pass a health and welfare message to your family and friends, wherever they reside, even if phones are down and power is out in your city and in Colorado,"
Mr. Hart said."Getting your emergency message to E-COMM is accomplished via amateur radio operators worldwide, who are already generally organized in the Amateur Radio Emergency Service (ARES). E-COMM will form a strategic alliance with those operators and ARES groups who volunteer to participate and they will be listed in individual city directories that travelers, residents, missionaries, and others, can download from E-COMM's ftp server. According to Mr. Hart, "when a disaster strikes, or an individual has an emergency, either call one of the amateur radio operators listed in our city directories, or if the phone lines are down, go directly to the operator's home, or ARES central location."

To make emergency communications work faster and more reliable, E-COMM is requesting that before traveling out-of-country, or out-of-state, you register the names and contact information of family and friends. In addition, E-COMM will ask Internet users worldwide to volunteer as I-CALL sites—Internet Caller Location sites—that will receive emergency messages addressed for a family or friend in their city.

E-COMM will have a large communication facility constructed in Lakewood, Colorado. It will include high-frequency transceivers, very high frequency transceivers, satellite communications, packet communications, and of course an email server, an ftp server, and a WWW server, all connected via a T-1 to the Internet.

The WWW server will have a WEB News Page that will feature the latest information on emergencies taking place worldwide, as reported by amateur radio operators on the scene. Anyone can log on and download the latest news.

The ftp server will allow anyone to download city directories of amateur radio operators, and files pertaining to E-COMM.

The e-mail server will act as the centerpiece in the concept, delivering automated and human-assisted message updates to all registered family and friends, as well as message bulletins.

Inbound traffic will come mainly from worldwide amateur radio operators, using wireless communications methods, such as packet and high-frequency radio. Outbound messages will be delivered via the E-COMM email server on a T-1 connection to the I-CALL sites, or via telephone to the family.

"When we are finished building it, the link between the Amateur Radio Emergency Service—the most valuable public wireless communication resource in the

A WORLD WIDE EMERGENCY COMMUNICATION PROJECT

world—will have been made with the Internet, as well as other online services, and near-instant communications to family and friends will have been established," Mr. Hart said.

"The problem with amateur radio's public service effort currently is two-fold: 1) there is no powerful, full-time dedicated radio facility linked to the Internet and 2) disaster victims only have a vague idea of where to go to get an emergency message out," Mr. Hart explained. "E-COMM will assist ARES on many levels," he added, including city-by-city lists of all participating ARES organizations, and help in publicizing the emergency plans of all ARES groups.

E-COMM will be a 24-hour, 7 day-a-week listening post, staffed by volunteer amateur radio operators who will be trained in the operation of the Internet.

E-COMM, Inc. is a nonprofit corporation, presently awaiting Internal Revenue Service tax-deductible status. E-COMM will be funded by donations of equipment, cash, labor, and by sales of a private label coffee, supplied to E-COMM by a third generation coffee grower, and by sales of T-shirts, coffee mugs, and other items.

To receive a weekly email bulletin on the progress of E-COMM, please send your email address to jhart@teal.csn.net with a request in the subject or message to receive E-COMM BULLETIN.

Internet users who wish to become an authorized I-CALL site should send a request for an I-CALL APPLICATION, to jhart@teal.csn.net.

For more information, please contact:
John Hart, founder
767 South Xenon Court, Suite 117
Lakewood, CO 80228
Voice: 303-987-3246
Fax: 303-987-3246
Internet: jhart@teal.csn.net
CompuServe: John Hart 71044,2446
America Online: fyihart

Welcome to the ATV Information Server

The ATV ListServe run by Doug Ferrell, KD4MOJ, is open to any and everyone who has an interest in Amateur Television (ATV).

The ATV ListServe is like a mailing list for E-Mail that all messages addressed to "ATV@exchange.tlh.fl.us" are reflected to all users who are participants of this list. In this way, a discussion on ATV equipment, information or products are redirected to each participant's personal E-mail account no matter where you receive your mail (AOL, CompuServe, Freenets, Internet providers etc.).

The ATV ListServe was created by me because I am interested in ATV and there is little on-line information out there. I have had to savor every bit of information that I run across from magazines (ATVQ is excellent! - a little plug) so maybe on-line input will help those that are new to this exciting hobby such as myself!

Now for the particulars of this list.

To add yourself to the list, send a message to ATV-Request@exchange.tlh.fl.us with the following words in the body of the message:

ADD JOIN SUBSCRIBE

You can also delete yourself from the list by including any of the following commands in the body of your message:

DELETE UNSUBSCRIBE REMOVE

Address a message to ATV@exchange.tlh.fl.us to have your message redirected to the ATV ListServe for others to read and enjoy!

Address a message to Doug, KD4MOJ, at one of the following addresses if you have any questions or comments:

doug@exchange.tlh.fl.us
kd4moj@exchange.tlh.fl.us
(904) 575-6577 Voice * (904) 575-7900 BBS *
(904) 575-6577 Fax

Hope to see you on-line!

1994 EIGHTH ANNUAL ATV BANQUET LITCHFIELD, ILLINOIS

With the beginning of the Christmas season, in everyone's mind a group of Amateur Television Operators met for an evening of fellowship and fun. The Eight Annual Central Illinois/St. Louis Area Amateur Television Club Banquet was held at the Ariston Restaurant in Litchfield, Illinois with 50 members attending.

The activities began at 5:00 pm with old and new members making and renewing acquaintances during happy hour. With special Christmas decorations added by Kathy, WB9QLY, and niece

Amy Bishop, holiday fellowship was in full gear.

At 6:30 pm, K9SM called the banquet to order beginning with a prayer by Cindy, N9GNZ. Following the prayer, the clatter of utensils and plates mixed with the chatter from the various tables was heard and a delicious meal was enjoyed by all.

This year's program began with the special awards for members of the group. KB9DU who had travelled to Alaska this year was given an extra fan blade for his next trip. Bill found that when travelling such long distances, one must have a spare part for everything. KD9CN was given a bouquet of flowers (or what was left of them) for his new nickname Mr. Romantic. This was given to him by the Mississippi Valley DX Club for taking his wife along to the Peoria Hamfest as an anniversary present.

The fourth annual Central Illinois/St. Louis Amateur Television Operator plaque was awarded to Dale Stewart from St. Louis, MO. Dale has been very active in ATV in the St. Louis area.

This year's program was a presentation given by Doug Over, KA9HDZ. Doug was the coordinator for the Olympic Festival which was held this summer in St. Louis. He told us about the problems that developed with the various agencies and venues and how he dealt with them. It also allowed for the writing of a manual for operations which can be used for future events.

The famous double draw for prizes concluded the program. Everyone looks forward to these prizes awarded to the lucky winners.

WHEEL ANTENNAS!

70 cm Little Wheel
420-450 Mhz: ATV or 432.1 SSB

900 Mhz Nano Wheel
ATV

23 cm Mini Wheel
ATV

13 cm Micro Wheel
Horizontally Polarized Beacons
All Stackable!

$39.95 ea.
any band

Mag Wheels: Magnetically-Mounted Versions Of The Above Antennas: **$59.95**

Olde Antenna Lab
4725 W. Quincy · Denver, CO · 80236
(303) 798-5926

SOUTHINGTON AMATEUR RADIO ASSOC.
FLEA MARKET
SUNDAY, APRIL 2ND, 1995
9:00AM TO 1:00PM
DEPAOLO JR HIGH SCHOOL
PLEASANT STREET, SOUTHINGTON, CT

Admission $3.00 Early Bird Special: Doors open at 8:30am and admission is $10.00 til 9:00am.
*6 foot tables costs: Advanced $12.00 - Door $18.00
*One person aiding the vendor admitted free
*For information contact Steve N1GCV at 621-6191
*Doors for vendors unloading at 6:30am
Talk-in on: 145.490 147.345 224.800 444.250 PL-77Hz

Exams of all classes given

All classes of Amateur Radio Exams will be given at the Fleamarket on a **Pre-Registration basis only!** Send a SASE for a confirmation letter.

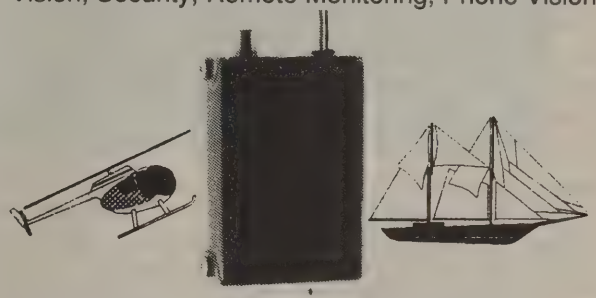
Food service by: **Generis Caterers.** Hot and cold drinks, food.

As usual just follow the map or the signs as you get off exit 32 off I-84.

For Table Reservations send S.A.S.E. to Southington ARA, P.O. Box 873, Southington, CT 06479 Checks payable to S.A.R.A. Inc.
Please Reserve _____ tables
Name
Call
Address
Town
State Zip
Phone

Micro-Video Camera
SMALL SIZE 2"x3"x1"

Feather Weight 4 oz.
NTSC Output 240 TV Lines
Low Light 2 Lux 7-15 VDC/<100ma.
Typical Applications: ATV, Robotics, Computer Vision, Security, Remote Monitoring, Phone Vision



Factory New $229.95
Add $5.00 S/H Ca. add 6.75%

Micro Video Products
1334 So. Shawnee Dr. • Santa Ana, CA 92704
1-800-473-0538 (714) 957-9268

SPARC
SHORE POINTS AMATEUR RADIO CLUB
ANNOUNCES
SPRINGFEST '95

Holy Spirit High School Route 9 , Absecon, NJ Saturday, March 4, 1995
Doors open at 9 am Rain or Shine Donation $5 - XYLs free 8' sellers tables $7 each
8,000 sq. ft. indoor selling space Limited AC power indoors
Tailgating, weather-permitting Good food and beverages on sale
VE testing
Talk-in on club repeater 146.985 - Any questions, please write:
SPARC, P.O. Box 142, Absecon, NJ 08201
Detach here and mail with your payment
Hamfest Reservation Form
Please reserve (3) _____ tables at $7.00 per 8-foot section.
Total $ _____
I wish to purchase (#)_____ admission tickets at $5.00 each.
Total $ _____
Total enclosed $ _____
Name: _____
Address: _____
_____
Please mail to: SPARC, P.O. Box 142, Absecon, N.J. 08201

LITTLE ROCK HAMFEST
THE OUTLET MALL
LITTLE ROCK EXPO CENTER
MARCH 31-APRIL 1, 1995
Exit 126, I-30, Southwest Little Rock
(Same Location as 1994)

THEME: Integrated Communications in Emergencies

There is approximately 135,000 square feet of indoor space, with excellent lighting, heat and air-conditioning, wide hallways, over 1000 parking spaces, handicapped access through all entrances, and much more.

Many dealers Flea Market Tail-Gates Exhibitors Forums
Special items of interest Working stations on: Packet
Amateur Television , Satellite, Technical Table, Youth Activities
Homebuilders Contest

Fox Hunts, Wouff-Hong, National Weather Service, Office of Emergency Services, Ares-Races, Mars, C.W. Contests
Special Exhibits: Military Communications Unit Displays
State OES Communications Van, Mobile Emergency Communications Vehicles,Television Station, Satellites, Antique Amateur Radio Show
And More

For More Information Contact: Chairman , Jim Blackmon KB5IFV
1008 Pine Street, Arkadelphia, AR 71923-4949 501-246-6734 Office
501-246-7833 Home (24 hour recorder) 501-246-6736 FAX
Home BBS KB5IFV-1 Arkadelphia, AR

The W60RGy Notes

NEW HANDBOOK

The ARRL did a major revision of the Amateur bible for 1996. For those of you that buy one as often as you buy another car, you might consider getting the 1994 for the old stuff if still available as well as the 1995. The 1995 bares no resemblance to the previous books. It was completely updated, and reorganized. Some will like it and some will not, but the fact is it was getting way too big with all the additions and few deletions over many years. Those of us who contributed to the book were asked to put the latest info in with the fewest words. I wrote the ATV section with that in mind putting what considered the most important information to most new ATVers to help get them going. Check out pages 12.47 through 12.54 and let me know what you think

$170 COLOR CAMERA

Wow, I could not believe it when I saw the ad in Nuts and Volts Magazine. I called the number and asked if they were New not surplus and complete. They were So I gave them my credit card info and said send me one. You never know with some of the adz in this type of magazine that have lots of surplus parts and equipment for all kinds of electronic experimenters. It came in about a week and I immediately plugged it in. It gave a great color picture. The Panasonic BS7370 CCD camera is made up of two uncased boards bolted together. There is a fixed wide angle lens that seemed to have a depth of field from less than a foot to infinity. The lens is mounted on a board that can be snapped off the main board and is connected by a ribbon cable. This enables mounting the lens on any side or end of an enclosure you might get for it. Power requirement is 12 Vdc at 360 ma. Resolution is speced at 330 lines with a pixel matrix of 512(H) x 492(V). Minimum illumination is listed as 20 lux but normal lighting in a room seemed to be more than enough maybe they were honest about the lux rating where other lux ratings I have seen are as exaggerated as antenna manufacturers put out about their products. The main boards are about 2.5" square and the lens board is about 1.5" square. I think this is a great little board color camera for R~C, dedicated repeater or base ID's, portable and mobile applications or home station. For more info or order call Target Technologies at (910) 395 6184.

BOXED IN

I came across a company that makes hot tin plated boxes and aluminum enclosures that looked like it might fit some of my boards for R/C and other uses. I suggest calling SESCOM for their free catalogue at (800) 634 3457. The SB-6 RF shielded hot tin plated box nicely fits the TXA5-70 or TXA5R/C transmitters and the SB-1 will accommodate the small ATVM70 and MSC-2 transmitter system. The boards or ground wires can be directly soldered to the box. They also have a good price on feed through caps. Their RSB-5 enclosure looks like it would make a nice looking box for Kreepie Peepie (KPA5) portable ATV transmitter applications.

DOWNEAST SPLIT

As of January 1, Bill Olson. W3HQT, has sold off the antenna side of Downeast Microwave to Dave Olean, K1WHS. Dave has named his company Directive Systems and is supplying the fine antennas designed by Bill with out a break. In fact he had been manufacturing the antennas for Bill for some time. The new number for Directive Systems is (207) 658-7758. The amplifier, transverter, and parts side went to Steve Gostro, N2CEI, and will keep the Downeast name. His number is (908 996 3584. Bill told me the business grew way past his expectations and was getting to a size where he didn't want to take the next growth step. So he split it and sold it off to two people who had been working with him. Now he can become a full time Contra Dance caller and musician and some time to enjoy ham radio. He will be in the Downeast booth behind us again at Dayton this year. Anyone out there want to buy PC Electronics so I can become a full time triathlete and helicopter pilot?

SHORTED TYPO

Last issues orgy Notes had a typo that the Downeast 33 and 23 cm preamps with the input "short" would not be stocked by PC Electronics. They are actually in stock and have a new part number that denotes that they have the input filtering to reject out of band overload interference. The 1200 MHz antenna mounted preamp is model 23LNAWPQ and the 900 MHz version is 33LNAWPQ.

MORE RABBIT 33CM STUFF

The only linear enough brick that will take the output of a Part 16 transmitter and give some watts out that I have been able to find is the Hitachi PF0011 MOSFET Hybrid. This brick is used in the Downeast 3310PA available as a kit or complete unit. While full power output is 10 watts with 10 mw drive, the rabbits with their nominal 1 to 5 mw will give you a few watts well within the linear range. This lower drive is actually ideal since the rabbit transmitters do not have adjustable sync stretching.

If you want to make your own, RF Parts (619) 744-0750, has the plastic case version of the Hitachi PF0011 the PF0031, for about $47. One word of caution, there is 30 dB or more gain in these modules and they can easily turn into a power oscillator and blow themselves up if left on too long. Care must be taken to isolate the input from the output and have low VSWR. As we also cautioned last issue, when using a Part 15 transmitter, make frequent checks with frequency counter to make sure you have not drifted to less than 5 MHz from the 902 - 928 MHz band edges.

DAYTON

Yes, we will be there again in our same booth #355. The following year, I am not sure, we may stock one of our dealers there instead. In 1996 instead of the last weekend in April, it will move to mid May which they hope will mean less chance of rain for the flea market flooding The Saturday afternoon ATV Forum will feature (Gordon West, WB6NOA! with some show and tell of the one way ATV DX between California and Hawaii.

73, Tom O'Hara W6ORG Internet: tomsmb@aol.com

P.C. ELECTRONICS 2522 PAXSON LANE ARCADIA CA 91007-8537 USA
TOM (W6ORG) & MARYANN (WB6YSS) O'HARA (818)447-4565
24 hr **FAX** order line (818) 447-0489

THE ATV TWINS

THE LOW COST PROGRESSIVE ALTERNATIVE TO A TRANSCEIVER

Made in U.S.A.

TX70-1b Transmitter only *$279* delivered UPS TVC-4G Downconverter $89

Not Sure what ATV is all about and your hobby budget's tight? Start with the tried and true TVC-4G Downconverter to see the action for just $89. Then later, when you want to transmit, just add the TX70-1b companion Transmitter at only $279.

TX70-1b SPECIAL FEATURES:

* Two frequency 1.5 W p.e.p. transmitter properly matches linear amps with adjustable internal sync stretcher & blanking level on the time proven KPA5 transmitter board
* Built-in RF T/R relay board switches antenna and applied 13.8 Vdc between transmitter amd your external ATV downconverter
* Full 25 kHz dev. broadcast standard 4.5 MHz sound subcarrier with independant mic and line audio controls allow voice over commenting while showing home video tapes. Accepts low impedance dynamic mics with "Push to Look" switch.
* Transmit RF detected composite video outputs to monitor phono jack on back to see what you are transmitting. In receive you see your own direct camera video at this jack to enable focus and lighting set-up before flipping the switch into transmit.
* RCA phono jack camcorder or VCR composite 75 Ohm video and line audio inputs, type N 50 Ohm antenna input, and 50 Ohm BNC output to downconverter connectors
* Small rugged shielded cabinet - 7.3 x 4.7 x 2.1", 1lb. 11 oz.

Just plug in your camera,VCR, camcorder, etc. composite video and audio, 70cm antenna, 12 to 14 Vdc @ .5A, and you are ready to transmit live action color or black and white pictures and sound to other amateurs. Specify 439.25, 434.0, 427.25 or 426.25 MHz transmit frequency. 1 crystal included, second crystal add $15.

*Transmitting equipment sold only to licensed Tech class or higher radio amateurs verified in the Callbook for legal purposes. If newly licensed or upgraded, mail or fax copy of license.

WHAT ELSE DOES IT TAKE TO GET ON ATV?

Any code free Tech class or higher amateur can get on 70cm ATV with full color and sound. Any video camera, camcorder, VCR or computer with a composite video output can be plugged into the front panel phono jacks for both audio and video transmission.

Start by selecting a 70cm antenna and connecting a TVC-4G downconverter to your TV set to receive. Add the Transmitter along with your camcorder and 13.8 Vdc from a regulated power supply capable of .5 Amps and you are on the air. It's easy!

DX with TX70-1b's and FO22-ATV antennas line of sight and snow free is over 22 miles, 7 miles with the 440-6X normally used for portable uses like parades, races, search & rescue, damage accessment, etc. For greater DX or punching thru obstacles add either of the ATV compatible 15, 50 or 70 watt amps listed below.

The TX70-1b has full bandwidth for color, sound and live action just like broadcast. You can show the shack, home video tapes, computer programs, repeat SSTV, weather radar, or even Space Shuttle video if you have a home satellite receiver. See ARRL Handbook chapters 20 & 7 for more info and Repeater Directory for local ATV repeaters.

BUY BOTH AND SAVE $19

If you order both the TX70-1b and the TVC-4G at the same time, the special package price is $349

Most telephone orders shipped within 24 Hours 8/94

COMPLETE 70CM ATV STATION

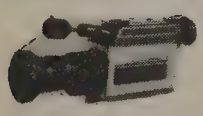
Your TV set

+

+

D26N

+


Your video camera or camcorder

+ **TX70-1b-$279 & TVC-4G-$89**
ATV Xmit & Rec
1.5 Watts p.e.p.

13.8 Vdc Power Supply required

Optional matching Amplifiers
Mirage D15N 15 Watts RF out $176
Mirage D26N 50 Watts RF out.....$249
Mirage D100ATVN 70 Watts out.$359

Antennas see page 5
KLM 440-16X 14dBd $139
KLM 440-10X 11 dBd $77
KLM 440-6X 8.9 dBd $60
RUTLAND FO22-ATV 15.8 dBd $119

Remember when comparing prices, ours include UPS surface shipping. 10/94

2509+ Mile DX set with our gear, KH6HME to WB6NOA & KC6CCC - - - Can you beat it?
HAMS, call (818) 447-4565 now for your complete 10 page catalogue of our ATV products!

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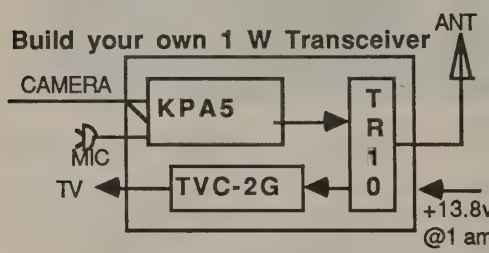
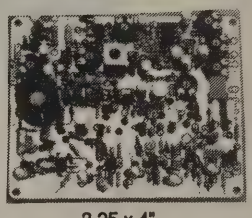
24 hr **FAX** order line (818) 447-0489

ELECTRONICS ,THE "KREEPIE PEEPIE" ATV TRANSMITTER

THIS IS THE ATV TRANSMITTER BOARD YOU HAVE READ ABOUT THAT HAS SURVIVED MANY BALLOON FLIGHTS TO OVER *100,000 FEET* AND BACK. ALSO USED FOR R/C MODELS WHERE AN ALL IN ONE BOARD WITH SOUND IS DESIRED OR DEDICATED LINKS AND REPEATERS. JUST THE THING FOR THE BUILDER WHO WANTS TO PACKAGE AND MAKE HIS OWN PORTABLE 70 CM ATV TRANSMITTER OR HOME TRANSCEIVER WITH A WIRED AND TESTED BOARD.





3.25 x 4"

KPA5-F board only $169

KPA5-F 70CM ATV XMTR BOARD FEATURES:

- 1.5 Watts P.E.P. typical RF output. Run barefoot for portable, but if needed for greatert DX, the output properly matches the Mirage D15N 15 watt, D26N-ATV 50 Watt linear amp for full output or D100TVN to over 70 Watts with its adjustable sync stretcher. Same board as used in TX70-1b.
- FULL COLOR AND SOUND on a small 3.25 x 4" board
- Wired and tested board runs on external 13.8 Vdc @ 300 mA. supply or 12 V battery. Weighs only 3 oz.
- Accepts composite video from cameras, camcorders, VCRs, computers, etc. 2 audio inputs, one for low Z dynamic mic, & one line level from most cameras & VCRs. Transmit monitor output enables seeing your own true RF detected video.

KPA5 APPLICATION:

PORTABLE CORDLESS TV CAMERA. Think of it as a video HT. Place the KPA5 in one of the L.M.B. Diecast aluminum boxes, Diamond RH77CA half wave on top or at the end of 50Ω coax attached to a headset. Plug into a 12 to 13.8V source such as a 12 Vdc battery pack. Depending on terrain & receiving antenna DX is typically over 1 mile. Then at home with Rutland FO22-ATV antennas at both ends DX is >22 miles snow-free line-of-sight.

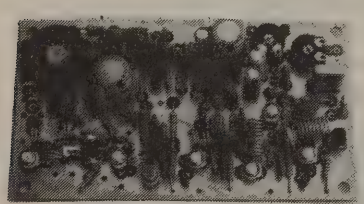
Price only $169 supplied with one crystal on 426.25, 434.0, 427.25 or 439.25. 2nd xtal add $15. Has 2 relay switched crystal sockets. Specify frequency(s) when ordering, check with local ATVers, ARRL Repeater Directory or call us. Sold only to code free Technician class or higher licensed radio amateurs.

ACCESSORIES:

L.M.B. CAB247 7.3x4.7x2" roomy aluminum box.....**$22**
CAB234 4.6x3.6x2" aluminum box, smaller tighter fit.....**$14**
100 Ohm carbon panel pot for video gain control.....**$5**
TR-10 RF T/R relay module, mounts on chassis N conn.....**$29**
TVC-4G..$89 or TVC-2G..$49 Downconverter (pg 5)
RG174 50 Ohm 1/10 inch dia. coax cable, 6ft.....**$3**
MIRAGE D15N-ATV 1.5 in /15 out all mode amp.....**$176**
MIRAGE D26N-ATV 1.5 in / 50 out all mode amp.....**$249**
MIRAGE D100TVN 1.5 in/70 out all mode amp.....**$359**

DIAMOND RH77CA 2/70cm omni antenna, BNC, 15".....**$30**
450 ISOPOLE omni 4 dBd vert. gain antenna, N.....**$89**
KLM 440-6X 8.9 dBd ant., 28" boom, >50 deg. BW.....**$60**
KLM 440-10X 11.2 dBd, antenna, 64" boom.....**$77**
RUTLAND FO22-ATV 15.8 dBd antenna, 14 ft boom...**$119**
UG21 type N male connector for Belden 9913 coax.....**$5**
UG58 N female flange type chassis connector.....**$2**
800J 10 pin VHS color camera chassis female connector..**$10**
1000 pF Feed-thru Cap for R/C or repeater buildiers.....**$4**

SMALL TXA5-RC 1 WATT ATV TRANSMITTER.....$129

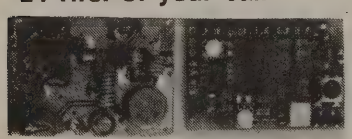


TXA5-RC 2.25 x 4"

Shipped within 24 Hrs. of your call

Designed primarily for Radio Control models, rockets, balloons, etc. with it's small 2.25 x 4 inch size and 2 oz. weight. Adjustable power output from 1.5 p.e.p. to 100 mW. Draws 350 MA @ 13.8 Vdc and 1 Watt, 200 ma at 100 mW. Has adjustable sync stretcher and provisions for sound from the FMA5-F board (pg 2) in case your application needs higher power sometimes or subcarrier sound. Comes wired and tested ready for you to mount in a shielded enclosure, connect up coax from antenna and camera and wires to power source. Plan on shielding your R/C receiver and adding the simple antenna low pass filter supplied with the application note. Receive with one of our 70 cm downconverters listed on page 5 and a TV set. Specify freq., 426.25 MHz suggested for R/C, other standard ATV freq. avail.

TXA5-70a board can also be used for R/C applications where 2 frequency capability is desired. Same size as TXA5-RC but 80 mw.for .25 to 5 mile DX, or add 10 Watt PA5 amp for 3 to over 100 mile line of sight DX. See page 2....**$89**



ATVM-70 Transmitter MSC-2 Sound

MICROTEK ATVM-70 MINI ATV transmitter board.....$209
Only 1.0 x 1.3 inch, wired and tested board. See article in July 91 73 Magazine page 9. Nominal output 80 mw. Capable of driving the PA5 for higher power. Requires 7.0 to 10.0 Vdc maximum at <100 ma. Only 434.0 MHz is available with the SAW oscillator. Also Great for R/C models, robots, demos or short links. Snow free line of sight DX1/4 mile dipole to dipole or up to 5 miles with Rutland FO22-ATV antennas.
MSC-2 companion 4.5 MHz sound subcarrier board, same board size as ATVM70.....**$59**

HAMS, call (818) 447-4565 for your complete 10 page catalog of our ATV products! We have everything you need to get on the 400, 900 and 1200 MHz bands. 10/94

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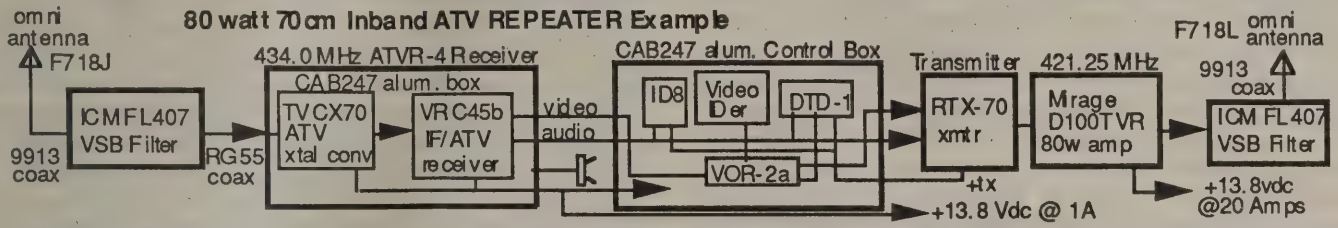
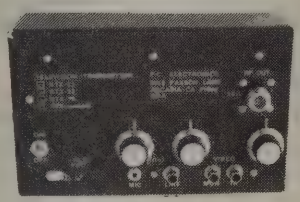
ELECTRONICS

READY FOR AN ATV REPEATER OR LINK IN YOUR AREA?

WE HAVE THE MODULES AND SOURCES FOR INBAND OR CROSSBAND



Select an RTX Transmitter and a ATVR Receiver for the bands you want, add the appropriate linear amp,VSB filters & antennas, ID & VOR-2a, power supply and coax for your own repeater. We suggest low in / high out for crossband. Ask for a copy of our 8 page ATV Repeater App Note including recommended sources of filters, antennas, video IDers, etc. before you start so you can do it right the first time. Most can put together a good working ATV repeater for under $2000.



TRANSMITTERS ready to go in a 7.3x4.7x2 die cast aluminum box for tight RF shielding. >1 Watt p.e.p. output for proper drive to companion amplifiers. Adjustable sync stretcher to enable set up of the right video to sync ratio after an amplifier is added. Independent mic and line audio inputs. Requires 13.8 Vdc at 500 ma.

RTX-70 specify output frequency, 421.25 MHz most popular rptr. output **$279**
MIRAGE D100ATV-R 90 Watts p.e.p on ATV continuous duty 70cm repeater amplifier see page 2 for more info and picture **$539**
RTX-33 specify frequency - 923.25 MHz most used frequency **$329**
RTX-23 specify frequency - 1253.25 MHz best rptr output freq. (available in October)
We suggest Downeast Microwave for 900 MHz (3318PA) and 1200 MHz (2318PAM or 2335PAM) repeater amps to match our transmitters. Call them at (207) 948-3741.

RECEIVERS ready to go in a 7.3x4.7x2 die cast aluminum box for tight RF shielding. Contains a TVCX crystal downconverter and VRC-45b receiver. Two composite video outputs, squelched speaker and line audio outputs. Requires 13.8 Vdc at 300 ma.

ATVR-4 specify frequency - 439.25 or 434.0 most popular for inband or crossband repeater input **$299**
ATVR-9 specify frequency - 910.25 most popular repeater input.....**$309**
ATVR-12 specify frequency - 1253.25 link, 1277.25 repeater input.....**$329**

VOR-2a Video Operated Relay board...$45, keys RTX upon detection of horizontal sync plus 10 min. & end of transmission momentary relay for switching to video ID to meet FCC regs. Pots for sensitvivity, hang & ID time. 1.75x3.5".
ID-8 Automatic Morse Audio Identifier...$89, Communications Specialists board has 8 programmable and selectable messages up to 200 characters, CW 1-99 WPM, ID time 1-99 minutes, and more features in Non-volatile EEPROM memory. Includes programming key pad. Output up to 4 V p-p. Size 1.85x1.12x.35. Req. 6 to 20 Vdc @ 6 ma.
DTD-1 DTMF Decoder...$59, Communications Specialists board decodes up to 4 programable digits for latched or momentary relay driver output. Use for remote repeater on/off, video switching, etc. Size 2.0x1.25". +7 to 16 Vdc.
LMB CAB 247 7.3x4.7x2 die cast aluminum box. Great for control housing VOR-2a, DTMF and ID boards...**$22**

ANTENNAS

When comparing prices remember ours include delivery by UPS surface in the contiguous USA.

70cm
F718 (L,J,A - specify video carrier frequency) Diamond vertical omni 9.3 dBd gain, 15 ft long.....**$238**
440-6X KLM 8.9 dBd gain 420-450 MHz 6 element beam. 28" boom, end mounted.....**$60**
COY4327EL Swiech 10 dBd 420-450 MHz 7 element beam. 4 ft boom, end mounted.....**$60**
440-10X KLM 11.2 dBd gain 420-450 MHz 10 element beam 64 " boom, end mounted.....**$77**
440-16X KLM 14.2 dBd gain 420-450 MHz 16 element beam 10.5 ft boom, center mounted.....**$139**
FO22-ATV RUTLAND 15.8 dBd gain 420-450 MHz 22 element beam 14 ft boom, center mtg.....**$119**

33cm
FP-19 Comet vertical omni 10 dBd gain, 7 ft 4 in long. Covers 902-928 MHz.....**$119**
3318LYARM Downeast Microwave 14.2 dBd gain 902-928 MHz beam. 6 ft boom, end mounted....**$95**

23cm
F1230 Diamond 1200 MHz band vertical omni 11.3 dBd gain, 10.5 ft long **$163**
2424LYRM Downeast Microwave 16.2 dBd gain 1240-1300 MHz beam. 6 ft boom, end mounted..**$95**

DOWNCONVERTER DISCOUNT of 10% is available to Repeater groups and clubs if you order 5 or more per item of the tuneable downconverters on pages 4 or 5. Special discount for Teacher Hams who will use ATV in classroom. The order must be sold and shipped to one person at one time. It helps to have some extras available for new people to try out your repeater or use at demos at other clubs and schools. Higher quantity discounts: 5-24 =10%, 25-49=15%, 50-99=20%, 100 up=25%.

Remember when comparing prices, ours include UPS surface shipping 9/94

Hams, call (818) 447-4565 for your 10 page catalog & repeater application note! 10/94

JACKSON HAMFEST & COMPUTER SHOW
Sunday, July 9, 1995

Many amateur radio clubs these days have hamfests and computer shows, our likewise has taken on the task to not just put on a hamfest like everyone else. The *Cascades Amateur Radio Society (C.A.R.S)*, of Jackson, Michigan, has contracted with the Jackson County Fair Grounds for the ventilated rollatorium and a huge black topped trunk sales area. Also, on backup is the huge bottom of the grandstands another inside ventilated area.

Yes, we could have found a parking lot and had one of those quick easy 3 to 4 hour swapshops, give away a prize and call it a day. I'm sure you and I have been to many of these, wondering whey we spent the time to go. The research we did shows that dealers did not want to drive for hours, set up and find they only had four or five hundred possible customers. Dealers wanted early time to set up, some need electricity, and yet others have other special needs. Many things have been taken into consideration, and hopefully we have taken care of your needs. Many things have been taking into consideration and hopefully we have taken care of your needs or still have plenty of time to do so.

Inside tables will include up to 2 chairs for each table. Inside table customer will be issued vendor passes for their help, and will not be required to buy an admission door prize ticket. Of course, they may if they wish. Electricity is extra, depending upon your needs. Advance large outdoor trunk sale setups will be treated the same as inside table setups.

Two major reasons to get your tables and spaces early. (1) Better locations for most traffic to first sales. (2) Your vendor name will be on more advertisements and fliers we mail out. A couple of reasons to help us. (1) We need prize donations (prize donor ribbons). (2) Up front money to help us pay our debts and make better plans.

THIS WILL BE MICHIGAN'S LARGEST HAMFEST AND COMPUTER SHOW

Admission and door prize tickets, Advance $3.50, At the gate $5.00.

Tables, advance	$10.00*
Tables, at the gate (admission ticket needed also)	$15.00
Trunk sales, advance	$ 4.00**
Trunk sales, at gate	$ 5.00
Electricity available	Extra

Dealer and Vendor setup 5:00 am to 8:00 am
General Public 8:00 am
For information contact: Terry Osborn, RD8B
517-78404734
weekdays 5:30 pm to 10:00 pm
Checks and Mailing:
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YOU DON'T WANT TO MISS THIS ONE!

LEW MCCOY ON ANTENNAS
RELEASED BY CQ

(Hicksville, New York) -- Pull Up a Chair and Learn From the Master. That's the subtitle of CQ Communications' newest book, *Lew McCoy on Antennas*, by Lew McCoy, W1ICP. And it fits. "Mac" is a living legend in amateur radio who's been at the middle of many of the hobby's major developments for at least four decades. And antennas have long been one of his favorite topics, the subject of countless lectures and articles to audiences around the world.

Lew McCoy on Antennas leads the reader through basic facts about antennas, standing wave ratio (SWR), antenna gain (and line loss) and transmatches; then on through chapters dedicated to a variety of different types of antennas, from the simple dipole to complex multiband beams and quads. And unlike other antenna books, Lew presents this sometimes-complicated material in a casual, non-intimidating way.

McCoy has been a "professional amateur" for more than 40 years, beginning with a 30-year plus tenure at the American Radio Relay League, where he retired as Technical Editor of *QST*. He is currently *CQ* magazine's Technical Editor and President of QCWA, the Quarter Century Wireless Association. Despite writing about antennas and other amateur radio topics for decades, *Lew McCoy on Antennas* is his first book. It retails for $15.95 and is available from many ham dealers or may be ordered directly from the publisher at 1-800-853-9797.

Lew McCoy on Antennas is published by CQ Communications, Inc., publishers of *CQ, The Radio Amateur's Journal, Communications Quarterly, Popular Communications* and other electronics journals, s well as the CQ Book and Video Library.

Sub: 900 MHz ATV ANT

To: ATVQ

What about 910 homebrew antenna for repeater reception?

I want to put the ATV repeater smack in the middle of the city hoping to get as much rabbit reception as possible. But people here are discouraged by early attempts to receive ATV and I'd like to know if there is a low/no cost rabbit antenna, something like coathanger loops on a broom stick...to give them a jum start. I think once people see it, they may be willing to spend some money to see it better. The WB2PMM repeater used a UHF 4-bay at it's first site and it could see me very well from 35 miles away w/6 watts. (I had a totally clear line of site to it and I've always said that LOS is better than anything else in the world!) Still, other people had problems and they changed antennas. I'm told it's working better, but I can't see it at the new site at all. I was encouraged by the UHF bow-ties, but I'm always willing to try something better!

RE: repeater input, Henry, KB9FO, wrote:

...Davenport repeater tried the commercial UHF TV antenna 4 bay bow tie antennas. The manufacturer swore that they were cut to operate from 420 up but they did not work well. I am using the Lindsay LPTV screen array, 8 diamond elements in front of a fish spine grill reflector. Each is 14 dB gain horizontal, stacked in the same direction they offer 19 dB gain or stacked for omni offer 10 dB gain. Lindsay makes several antennas which can be tuned for the 420 or 900 MHz band for repeater use. ATVQ Published an inexpensive Slot antenna design by the ATCO group and the HySpeccompany in recent issues. We only received one good report about the Iowa made slot antenna which was anectdotal. Most reports are near year long delivery and shoddy performance and very high cost vs performance.

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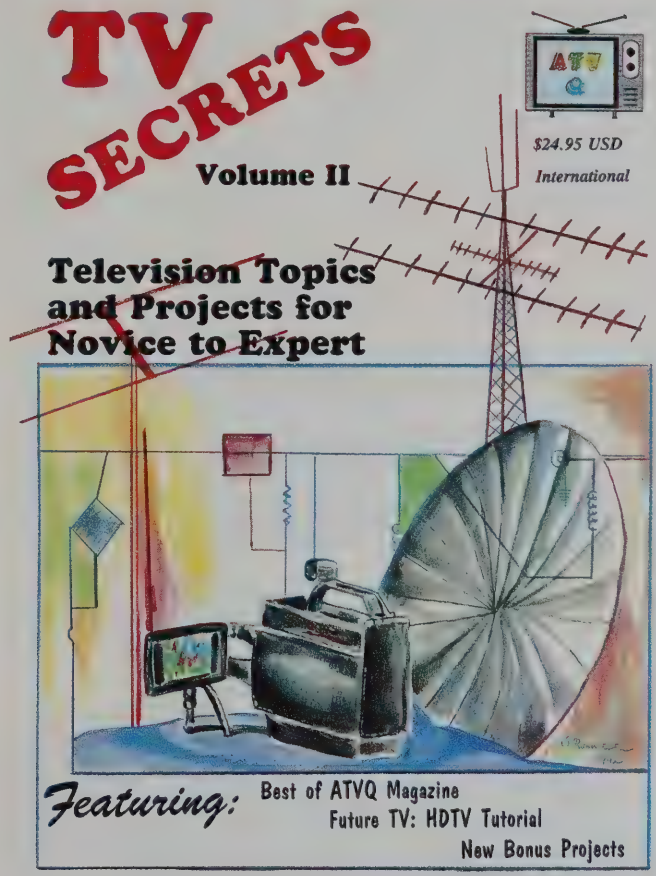
FINAL CHECKOUT OF STS 37 ATV GEAR FOR SAREX. NASA Photo.



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ATV COMPENDIUM

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A collection of projects and useful topics from issues of CQ-TV, compiled by Mike Wooding G6IQM. A high quality work with projects that work in both NTSC and PAL video systems. The BATC offers circuit boards and kits for most items they publish at reasonable cost. This book is OUT OF PRINT. A limited quantity of copies are on hand.

Available from ATVQ at $14.95 POST PAID.

AN INTRODUCTION TO AMATEUR TELEVISION

154 pgs. 8.25 x 5.75 1992

A collection of projects and useful topics including 24 cm ATV and a modular remote control station. Written and compiled by Trevor Brown G8CJS and Mike Wooding G6IQM. A high quality work. Circuit board layouts are provided and most projects are available as circuit boards or kits from the BATC at reasonable cost.

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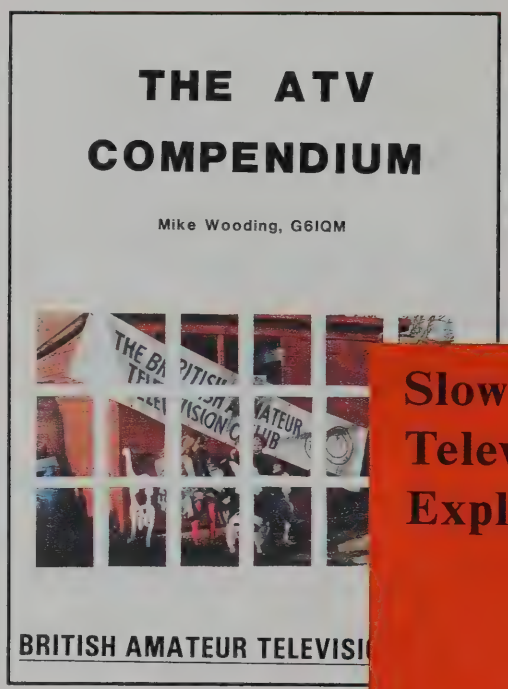

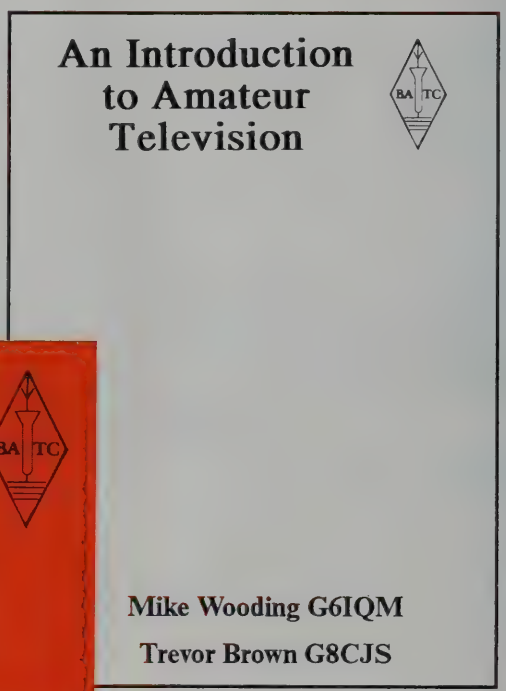

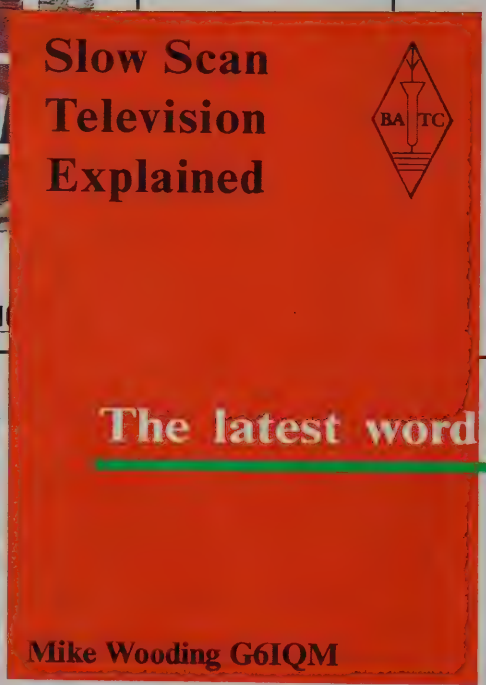

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CQ-TV

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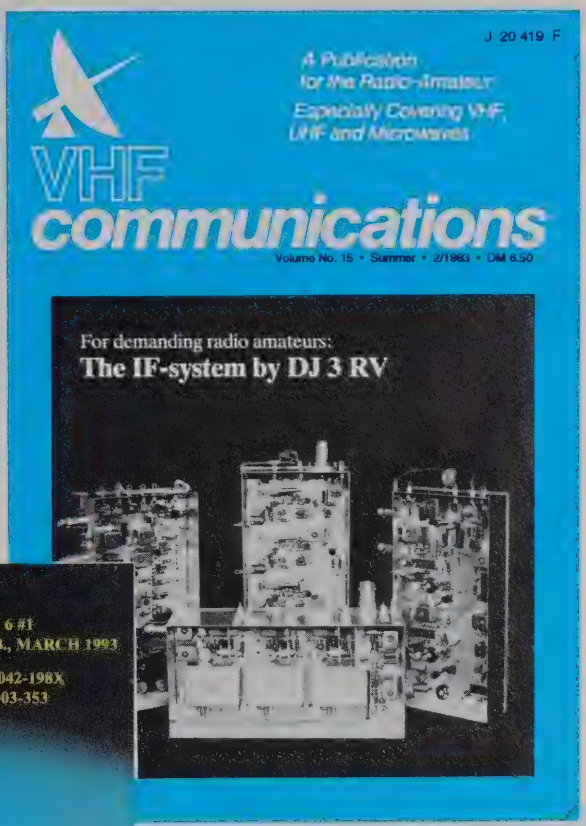
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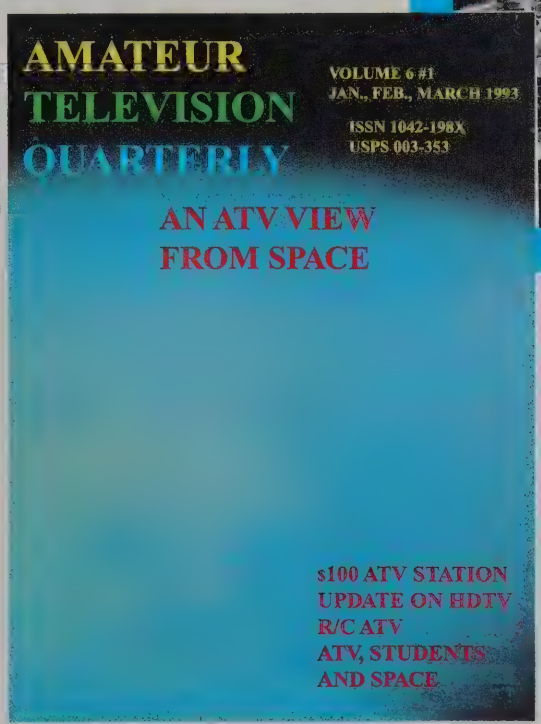

ATVQ Continuing the heritage of great US ATV publications, with topics and projects for all levels from novice to expert, plus FCC news, club and operating news, equipment reviews, build-it projects, covering all aspects of ham TV including FM-TV and HDTV.

Published four times per year. a must read for any video hobbist. Just the facts without hype. $18/yr US, $22 Canada, $29 DX. multi-year discounts, see order page. ATVQ sponsors the annual friday night Dayton ATV Party featuring expert speakers, live demos, socializing and ATV fun. Published by Henry KB9FO and Bill WB8ELK.

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THE DUAL BAND MAGWHEEL FOR MOBILE ATV

from Olde Antenna Lab
by Dave Clingerman - W6OAL

From the cards and letters we receive at **O A L** people are asking and wondering as of late 'what's new'? Well, considerable when it comes right down to it. Antennas for 222 MHz, a Folded Halo for the 2 meter band, Radomes for the 33 cm, 23 cm, 13 cm Quad Wheel arrays and **Dual Band MagWheels.** Business is just businessing away and the consideration given me be the HAM community is very much appreciated. We continue to provide the new products that has been requested. The Quad LittleWheels (70 cm) for repeater operation are continually being sought after and the Quad NanoWheel (33 cm) array with Radome has been a hot number among the 'wireless LAN' suppliers.

Recently there have been questions concerning the feasibility of creating a dual band wheel array and then, how well will it perform? Being a one man operation, when I'm manufacturing, research goes on stand-by and vice versa. However, the manufacturing is what brings in the money, and that's our number one priority. The Thanksgiving Holidays did afford me a little time to work up a design for a dual band wheel array, build a prototype, and engaged it in a multitude of testing. Some of the decisions that go into a product like this are; what band combinations are possible, should a single or dual transmission line be employed, if a single feed line is used should a duplexer or switch be employed, what sort of spacing between wheels will be needed to curb interaction, if it's to be a MagWheel type of mount what is the wind loading at 85 or 90 MPH, how can a pair of transmission lines be stabilized in a dynamic environment, if there is feed line radiation from one wheel will it affect the other one? If a choke need be employed will it effect the wind load and by how much? All of these things have to be investigated, problems addressed and solutions arrived at. These things take time, and time away from manufacturing means less toys under the tree.

The experimentation process for the Dual Band MagWheel went into action with a jolt as the latest Quad with Radome went out the door. We decided that the most common combination would be '70 cm/23 cm'. We also decided that a series of duplexers is not what we want to do right now. Therefore, a dual transmission line system was decided on. We started with a couple 19" lengths of 0.250" Dia. Micro-Coax hardline. The 23 cm Wheel (MiniWheel) was built on one of the lengths and resonated so that the VSWR was relatively flat from 1250 MHz to 1300 MHz. The second length was fitted with a 70 cm LittleWheel and resonated to cover the top ATV frequency (439.25 MHz + about 10 MHz). The MiniWheel and coax was positioned near and in parallel with the coax of the LittleWheel, about an inch apart and loosely taped in place. Some temporary type "N" coax fittings were affixed to the input ends of the transmission lines. The 23 cm wheel was set up first on the sweeper-VSWR Bridge-O'scope combination. When the MiniWheel was moved to within a quarter wavelength of the LittleWheel the point of resonance began to change. Sweeping the LittleWheel gave the same indications, so a few ferrite beads were slipped over the 23 cm coax and positioned just below the MiniWheel. Sweeping both wheels and staying no closer than a quarter wavelength at 23 cm caused no resonance shifts.

The ferrite beads worked fine, however, trying to keep them in place was going to be more bother than I wanted to endure. A 23 cm quarterwave shorted sleeve was constructed and placed over the MiniWheel coax. It was positioned within a tenth of an inch of the hub of the bottom wheel elements and soldered to the coax at the shorted end. The mouth of the choke was fitted with a Teflon bushing and sealed in place with Silicon Rubber Compound, General Electric RTV-108. When both wheels were swept to confirm that there was no interaction. The 23 cm wheel would be the top wheel for a reason. Beneath a LittleWheel it would be in the shadow area since from a vehicle roof the look angle is generally going to be up from the horizon. And, one more thing that was employed in the early stages of construction. The two wheels were constructed of opposite polarity to each other in an effort to minimize interaction. With this, the biggest of the problems out of the way, the mechanical integrity problem was undertaken.

The single run of 0.250" hardline sporting a LittleWheel seems to stand up fairly well at highway speeds of 85 MPH. But, how about a pair of them. We turned the crank on the equations for surface area and wind loading and torque at the attachment point to the magnet. All seemed to fall within design and stability parameters. As a matter of fact, the magnets we buy from Lakeview Co. Inc. will hold on to a metal surface long after the hardline has been laid against the roof of the vehicle. This would be somewhere around 165 MPH if it were to be tried. The magnet can be jarred loose like me having to take a ditch now and then during the Colorado winters. This is in an effort to keep from being hit by the 'cowboys' coming sideways at me in their "4X4's".

The two hardlines could be on the order of an inch apart without any electrical or mechanical interference. I thought of using Teflon but then thought better of it as it's rather slippery. I chose some 3/4 inch plugs of 3/4 inch diameter Nylon. One quarter inch notches were filed into the sides 180 degrees apart. Each notch was about an eighth to 3/16 inch deep. The plugs were then held in place with small hose clamps. I positioned them about a foot apart on the two transmission lines. The two input ends of the hardline were cut even and bent to 90 degrees leaving a one inch stub length to be fitted to the bulkhead mount type "N" female coax connectors. The hardlines had to be spread sideways a little to mate with the coax fittings that were affixed to an "L" bracket. The "L" bracket is then fitted to the magnet with appropriate hardware.

THE DUAL BAND MAGWHEEL FOR MOBILE ATV

The top antenna the MiniWheel (23 cm), on the finished product will ride about 17 inches above the vehicle roof, with the LittleWheel (70 cm) about 3 or 4 inches below it. The choke is made of one half inch diameter copper pipe and an end cap which has very little effect on the wind loading. The bare brass and copper colors of the array are not unpleasant to look at, however; even the most beautiful antennas are sometimes not fully 'wife approved' so I scuff the surfaces and paint the MagWheels using an 'epoxy' flat black.

Out for a drive, the array was set in the middle of the roof of my Plymouth Van and off we went to a major highway. The wind was blowing pretty good from all directions as it usually does around the foothills of the Front Range of the Rocky Mountains. I selected a stretch of highway that I knew would be fairly straight for quite a ways and started my run. There were very few cars and no police in sight so I got up to where my speedometer goes 'bump' some where past where the numbers stop at '85'. Nothing fell off or came loose. I made an equally quick sprint in the other direction back to where I'd started and still everything held on just fine. Once back in the 'lab' I measured to see if there had been any bending of the coax as I'd purposely arranged the mounting so wind would hit both coaxes head on. If there was any displacement out of the vertical, I sure couldn't measure it with my caliper and square.

I think I've covered everything necessary to construct a Dual Band MagWheel in case anyone wishes to take on such a project. Let me advise on the cost that could be incurred on materials;

Brass rod for wheel elements	$3.00
Brass machined hubs	$5.00
Brass sheet for stubs	$2.00
Teflon sheet for insulators	$5.00
Copper pipe and cap - choke -	$5.00
Magnet	$10.00
Hard line, 0.25", 50 ohm $23.00/ft	$35.00
Type "N" bulkhead connectors	$30.00
Machined "L" bracket mount	$5.00
Misc. hardware	$5.00
Paint	$4.00
	$109.00

Plus quite a few thousand dollars worth of test equipment so you can tell where you are and what you're doing to any sort of accuracy (the right way), not to mention the cost of manufacturing machinery (breaks, sheers, drill press, band saw, vertical sander, grinder etc.

OR, I will be glad to create a (70/33), (70/23), (70/13), (33/23), (33/13), (23/13) Dual MagWheel for you for the surprisingly low introductory price of $124.95 - get 'um while they're hot or more to the point while I'm in the mood to build them.

WARNING Please do not operate ATV Mobile while you are in motion. This sort of action is not conducive to longevity. Let your passenger do the operating. In this day and age driving is a full time job when you are on the road. Do your best to out live your subscription to **ATVQ**.

73,
Dave - W6OAL

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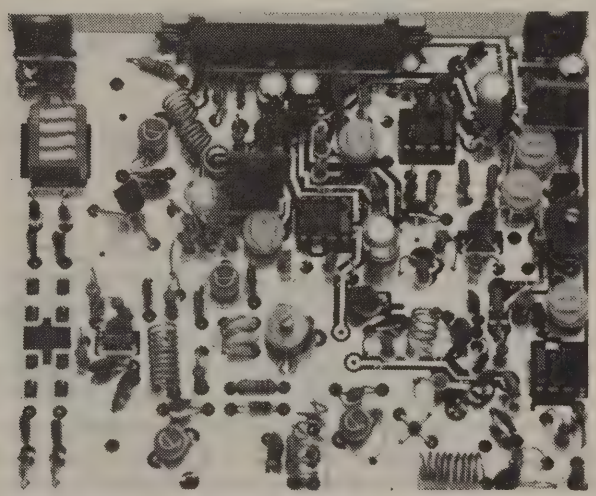

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COCOA-ROCKLEDGE CHRISTMAS PARADE TELEVISED BY LISATS

On December 3rd, LISATS marshalled three mobile ATV units and a receiving/control van, to relay Christmas parade video/audio to parade officials. The scenario was similar to the large scale scheme that the Southern California ATV Network pulls off on Rose Parade day, and even seemed like a mini-NBC type remote. The three mobile units were K4GCC, manned by John Anderson and Jim Grossman; W0TPB, with Bud Checkett and Norm Wilford, and W4BAL (COMM1) with Jim Bayless and Ira Bickham. Ernie Baldini and Jack Elliott operated the receiving site. The repeater was used, although simplex could have been, to determine coverage, and to practice for disaster ATV operations.

Parade officials were very impressed and asked us back next year. Plans are in the works to do the same for the March of Dimes event in March. This site is further away and will provide additional data. Simplex will be evaluated also.

BUILDING AND USING BALUNS AND UNUNS RELEASED BY CQ

(Hicksville, New York) -- Every active ham needs an antenna and a way to move signals efficiently between the antenna and the radio. Matching the transmission line to the antenna has been a topic of endless discussion and debate. Now Jerry Sevick, W2FMI -- *the* authority on transmission line transformer theory -- unravels the mysteries in *Building and Using Baluns and Ununs -- Practical Designs for the Experimenter.*

Building and Using Baluns and Ununs, newly published by CQ Communications, Inc., is the definitive source for Sevick's latest practical information and designs. This book provides a unique opportunity to learn about the application of baluns and ununs for dipoles, Yagis, log periodics. Beverages, antenna tuners and countless others. (For the *non*-experimenter who may be reading this, a *balun* is a transmission line transformer that connects between a *bal*anced antenna -- such as a dipole -- and an *un*balanced feedline -- such as coaxial cable; and an *unun* goes between an *un*balanced feedline and an *un*balanced antenna.

Jerry Sevick is renowned for his work on transmission line transformers, antennas and matching networks. His work on baluns and ununs has been adopted as a standard by the IEEE; and his 1978 *QST* article on short ground-radial systems serves as the world standard for earth conductivity measurements. He is author of *Transmission Line Transformers* (ARRL), a series on baluns in *Communications Quarterly* and a series on ununs in *CQ*.

Building and Using Baluns and Ununs retails for $19.95 and is available from many ham dealers or may be ordered directly from the publisher at 1-800-853-9797.

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LISATS will describe their repeater technically with overhead transparencies, slides and video tape. The interference-free, in-band repeater was achieved by careful shielding and by-pass practices and finding a basic oversight by the linear amplifier manufacturer. Input signals from LISATS members will be on tape and a special presentation of gen-lock graphics will be shown. Experience with a separate audio transmitter will be reviewed. Handouts will be available.

This will be a straight forward session on how-to-do-it-right. Be there! Ernie Baldini, K4RBD

LISATS ATV ANTENNA COVERAGE STILL AWAITS NEW WLRQ TOWER

WLRQ engineering and management officials still await the completion of their new 400 foot tower. Originally scheduled to have been complete by now, the contractor was delayed by unexpected water table problems. The latest schedule is now March 1995 completion.

LISATS members, at the November meeting agreed that when the new tower is up, we will optimize coverage to northwest Cocoa. If feasible, the 70 cm receive antenna will be moved up, possibly with a 9913 coax extension onto the 1 5/8 inch hardline.

The 10 dbd 23 and 33 cm vertical omni antennas will be installed when permissible and connected to the new 23 and 33 cm receivers, with their video/audio outputs fed into the controller for user selection. A year long experimental period will then proceed.

THROUGH THE LENS . . .

This has been a good year for LISATS. The video problem was found to be a leaky Mirage linear amplifier case. Some good public service was done and everybody's pictures keep getting better. A station was installed at the Brevard EOC for disaster work.

Chris, N4KCI, and I, were disappointed the **Amiga buy** didn't come off, but, alas, the wisdom of the group prevails!!

Weplan to try the Lenco Video ProcAmp again, now that the Mirage interference is gone. Perhaps that will improve everyone's color burst and the audio, too!

We could improve our manning of K4GCC's 94 machine during launch countdowns. Volunteer to monitor your scanner and man your 2 meter rig so visitors can get answers they seek. That's part of our club name!!

Hope also that we get some more launch countdown feeds (from Communications Concepts uplinks) by K4GCC of Titan, Atlas, and Delta launches.

The biggest thing we need on the Net and at other times, too, are more video tape presentations, and on the air video chalk-talk about circuits, showing of equipment and close-ups of construction.

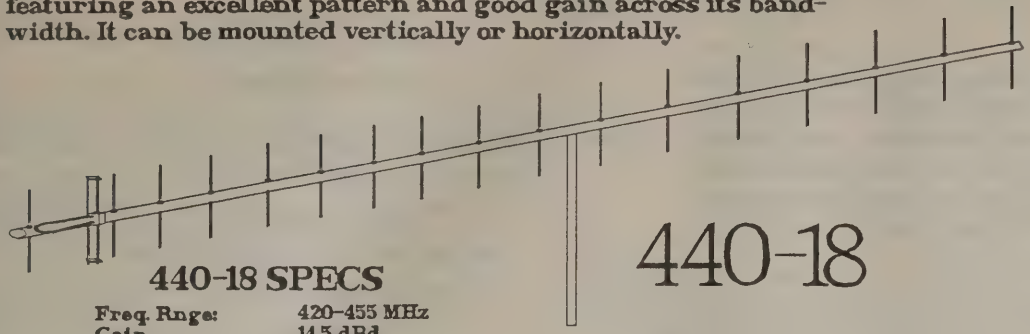
1995 can be still better than '94 IF you help!! Take that camcorder with you, catch the news, video your favorite gripe, whatever . . . but more videos, please!!

More later. Ernie K4RBD, Editor LISATS

The 440-18 is a carefully computer optimized broadband yagi featuring an excellent pattern and good gain across its bandwidth. It can be mounted vertically or horizontally.

OTHER ANTENNAS OF INTEREST FOR ATV USE!

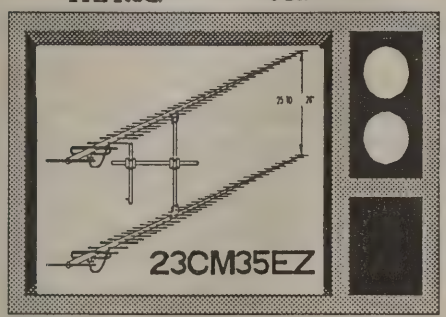
420-450-11
420-5-5
432-9WL



440-18

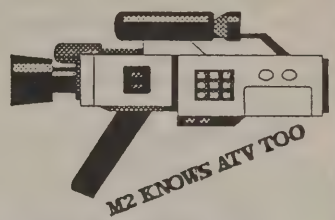
440-18 SPECS

Freq. Rnge:	420-455 MHz
Gain	14.5 dBd
Frt to bck.	23 dB
W. Area	.875 sq. ft.
Boom Lg	11.33 ft.
Trn Rad.	6 ft.



23CM35EZ SPECS

Freq. Range	1250 to 1300
Gain	18.4
Frt to Bck	25 dB
W. Area	0.6 Sq. Ft
Boom Lng	120 in
Trn. Rad	6 Ft



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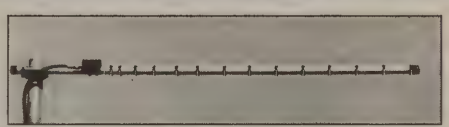
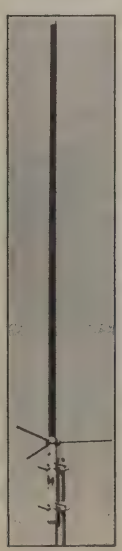
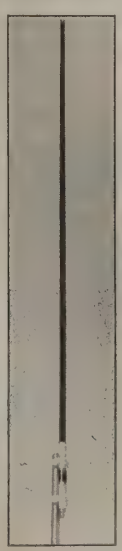
COMET
ANTENNAS FOR THE PROFESSIONAL AMATEUR

CYA-1216E
16 Element Yagi Beam 1260-1300MHz
Gain: 16.6dBi
VSWR: 1.5:1 or less
Impedance: 50 ohms
Max. Power: 100 watts
Polarization: Vertical or Horizontal
Length: 4' 5"
Weight: 7 lbs. 11 ozs.
Mounting Mast Diameter: 1'-2½"
Connector: N-Type
Construction: All Aluminum





CA-1243Z
Dual Band
440-450MHz
1250-1300MHz
Base/Repeater Antenna
5/8 Wave x 4 446MHz
5/8 Wave x 9 1200MHz
Gain: 446 9.4dB,
1200 12.8dB
Impedance: 50 ohms
VSWR: 1.5:1 or less
Max. Power: 446 150 watts,
1200 50 watts
Length: 7' 5"
Weight: 2 lbs. 8 ozs.
Connector: N-Type
Construction: Heavy Duty Fiberglass



CA-1221S
Mono Band
1260-1300MHz
Base/Repeater Antenna
1/2 Wave 21 Step
Collinear
Gain: 15.5dB
Impedance: 50 ohms
VSWR: 1.5:1 or less
Max. Power: 100 watts
Length: 8' 6"
Weight: 2 lbs. 3 ozs.
Mounting Mast Diameter:
1¼-2½ inches
Connector: N-Type

PYA-913
Base 13 Element Yagi
904-920 MHz
Gain: 15.8dBi F/B ratio
over 20dB
Max. Power: 150 watts
VSWR: 1.5:1 or less
Length: 4' 8"
Connector: N-Type
Construction: Aluminum

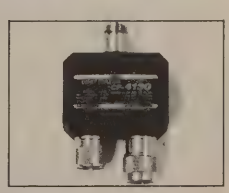
MINI SWR Power Meters

		Max. Power	Insertion Loss
CM-200	140-150MHz	45 watts	0.1dB
CM-300	200-240MHz	60 watts	0.2dB
CM-400	420-460MHz	50 watts	0.2dB
CM-420	140-460MHz	50 watts	0.1-0.2dB
CM-900	840-950MHz	60 watts	0.2dB
CM-1200	1225-1325MHz	60 watts	0.25dB

Measurements: 2.25"w x 2.25"h x 1.1"d
Weight: 5.25 oz.
CM-200, 300 and 400 have SO 239 Connectors
CM-420, 900 & 1200 have N Connectors

FP-19
Base/Repeater
905-925MHz
Gain: 16dBi
Impedance: 50 ohms
VSWR: 1.2:1 or less
Max. Power: 100 watts
Length: 7' 4"
Connector: N-Type
Construction: Heavy Duty Fiberglass

CF-4130 446/1200MHz
dB Loss: 1.3-460MHz 0.2dB,
900-1400MHz 0.3dB
Band Rejection: 55dB Down
Max. Power: 146MHz 800W PEP,
446MHz 500W PEP,
1200MHz 200W PEP
Connectors: N-Type



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CQ'S "GETTING STARTED IN VHF" VIDEO NAMED NY FESTIVALS FINALIST SECOND HONOR FOR PROGRAM

"Getting Started in VHF," CQ's video introduction to amateur radio repeaters and other aspects of VHF operating, has been named a finalist in The New York Festivals video competition for 1994. The New York Festivals has been honoring outstanding achievements in non-broadcast media since 1957. "Getting Started in VHF" was one of more than 1,250 programs entered in the competition's non-broadcast categories. Winners of the festivals' Gold, Silver and Bronze medals will be announced at an awards banquet in January 1995.

This is the second major honor for "Getting Started in VHF." Just a month ago, the program was awarded a Silver Hugo Award from the International Communication Film and Video Festival. It is also the second time in two years that a CQ video has been a finalist in the New York Festivals competition. Similar honors were presented in the 1993 competition to "Ham Radio Horizons," CQ's basic introduction to ham radio.

"Getting Started in VHF" is intended both for new hams and for more experienced amateurs who are trying VHF operating for the first time. It leads the viewer through a "road map" of the VHF and UHF ham bands and a "tour book" of activities
that they'll find there. It includes major segments on choosing and using VHF radios, repeater operating practices and packet radio basics, plus a look at some of the less-common activities available on VHF and UHF, such as satellite communications,
moonbounce and amateur television.

The program was written, produced and directed by Richard S. Moseson, NW2L, Executive Producer of the CQ Video Library. It was narrated by Jeff Ronner, WB2AEQ, and Sharon Krossel, N2HGR, and featured animation by Howard Better.
Gordon Ovsiew was the editor and Mark Abney designed the computer graphics.

The work of several professional camera crews appears in the program.

The CQ Video Library is a collection of video "how-to" programs about different aspects of amateur radio. Each program runs between 45 and 55 minutes and sells for $19.95. Programs are available in both the U.S. (NTSC) and European
(PAL) video standards, on VHS only, and may be ordered directly from CQ at 1-800-853-9797.

CQ COMMUNICATIONS, INC. - 76 N. BROADWAY, HICKSVILLE, NY 11801 Phone: 516-681-2922 / Fax: 516-681-2926 / Toll-Free Order Line: 1-800-853-9797 For More Information, Call: John Dorr, Director of Marketing 516-681-2922 Richard Moseson, Executive Producer 201-680-1585 E-Mail: CQ@genie.geis.com / NW2L@aol.com / 72127.745@compuserve.com

HAM ADZ

Subj: ROBOT 1200C
Date: 94-11-01 17:00:15 EST
From: Roland 6 7

Wanted good to mint working condition unit ONLY! I'll pay shipping anywhere!

Roland, WB6LNA
800/264-7662 Ext 5 anytime 24 hours

Subj: Re:sstv
Date: 94-12-21 22:21:37 EST
From: Omega71

Hank I have a Pasakon for sale. New was 230.00 will sell for 180.00.

Omega71 on AOL
Leave me a message...73's

Subj: disks
Date: 95-01-23 21:55:31 EST
From: JeffKF2RC

Do you us a lot of floppy disks? I ran across this deal and it seemed somewhat of a bargain. Here it is. This is the way his add reads Verbatim.

Prelabeled 3.5HD $32.00*
Prelabeled 3.5DD $24.00*
Prelabeled 5.25HD $20.00*
Prelabeled 5.25DD $12.00*

*Per 100. Packs of 50 also available.
For more information contact:

Richard at (212)344-2149

Subj: Need help w/ATV project
Date: 94-12-06 01:28:13 EST
From: HENRYVB

Hi. I work with a RACES unit in Chicago and we are investigating the potential uses of ATV within the service. I would appreciate anyone who has had experience with ATV in Public Safety passing on any info that you may have, so that we do not wander down paths we should not enter, or reinvent the wheel.

I know that there have been a number of successful uses of ATV in this field each year, including the New York City Marathon and Bay to Breakers race I have been told. I am looking for contacts who might know something about these events or any other places where ATV might have been uses for more than the standard "picture of the shack" and the pet.

Thanks for any assistance you can give. I don't have any experience at all with ATV, but do have the AOL account so that's why I am the question-asker.

Please email anything to me so as not to clutter up this message thread. Thanks.

900MHz NEWS

Subj: 900 Mhz ATV info Wanted
Date: 94-11-04 07:28:57 EST
From: N1fil

Thanks for reading.

We're getting into 900 Mhz ATV in our area and I'm not sure what to buy. I've been told that 900 Mhz rabbits will do the trick, does any one out there have any success with these ? Also what kind of equipment (P.C. Electronics, Pauldon, etc.) do you recommend ? Please E mail me with your info. Thanks!

N1fil @ AOL.com

Subj: Re:900 Mhz ATV info Wanted
Date: 94-11-20 20:08:55 EST
From: F5BJV

For 900 ATv i will recommand the rabbit Fm like HTS.They are synthesized and they want drift.The regular AM rabbit that you can find at some Tv stores for around 35 dollars are not very good for serious ATV.I did some test with the HTs Rabbit and I get about 5 milliwatts out in FM.You can buy a brick from RF Parts that will boost your power to 10 watts . We use them here in Atlanta for linking between 1200 Mhz and 440 .It works very well. 73

Subj: Re:900 Mhz ATV info Wanted
Date: 94-12-16 20:57:40 EST
From: JohnHDavis

There is now a crystal controlled version of the Gemini Rabbit, the VC-5000, available through some of the same dealers who carry the basic model, but I imagine it's also AM, so I'd like to try the HTS unit. Where would be a likely source for these?

Gentlemen:

I believe in the vacuum tubes as used in Radio -- and Television Communication for a great many years since the '20s What ATV circuits can you supply using ordinary radio and television tubes? I have many radio and TV parts and tubes since operating a service shop at Adrian, Michigan during the late '30s until 1962. Frankly, I don't care for transistors or ICS at all. A very healthy 77 years old.
George E. Hoadley W8MTJ 956 Miller Avenue Newark, OH 43055.
REPLY: Suggest you checkcopies of A5 Amateur Television Magazine, circa 1967-1975 available from ESF Copy Service 4011 Clearview Dr., Cedar Falls, IA 50613. 319 266 7040

COPY WAS TORN-CHECK ?? MARKS

DEVICE DELIVERS 9 W AT 900 MHZ

Class AB surface-mount transistor model PTB20093 is an NPN silicon device designed to deliver 9- ? output power from 800 to 1000 MHz. Ideal for cellular and other wireless applications, the transistor typically provides 10-dB gain and tolerates mismatches equivalent ? a VSWR of 30.0:1. Supplied in a SO-8 outline package, the +25V ? device can be used in pulsed and ? CW amplifiers. **Ericsson Components, 701 N. Glenville Drive, Richardson, TX 75081; (21?) 669-9900, FAX: (214) 680-1059.**

Dear Sir:

Enclosed please find my renewal for 2 more years of your fine, getting finer publication.

Bill W8DMR let me see your video of the antenna's at your QTH the other night. I wish he had not shown it to me, then in another way, I am glad he did. The first being my next adventure in the back of my mind, was to put up an array of serious antennas no one else had ever done before. Had I not seen your tape it might have happened, and we would have had a better antenna system here. And the second being, from what the video revealed you have already done it.

So now I don't have to . . . now just think of all the money you just saved me I can spend on something else I probably don't really need.

I really wanted to get this to you sooner, but Art W8RMC came over and got my pictures and negatives before you called.

As you can see in the enclosed newsletter, he published his story with my pictures, that is why he came and got my pictures.

We are located 10 miles east of downtown Columbus, when you come into town from the east in your mobile TV, you may remember Brice Road Exit and I-270 on the east side, that is Reynoldsburg, Ohio. Art W8RMC lives due north of Columbus in Westerville, Ohio. We are father east.

For ATV, we run a KW, with a pair of 4CX250's with its own video and audio modulator, driven by a 50 watt exciter using a 2C39. The 88 element J beam at 70 ft. and dual two stage Gasfet Preamp, is the reason my pictures and list of contacts were scarfed up by you know who, hi.

Also you will find some photos we took use what you think is best or have room for. Hope you can use some of this. And feel free to edit chop or use what you like. We are easy to get along with.

Thanks,
Wilbur Wollerman
K8AEH
1672 Rosehill Rd.
Reynoldsburg, Ohio 43068

ED: Modest fellow for setting a new world DX record!

ATV QUEST AWARDS PROGRAM for SSTV AND FSTV

Crown Point, IN

A complete new award program has been announced for the video modes. The program, sponsored by ATVQ Magazine is called Amateur Television Quest. Hams and SWL's may both compete for DX awards (Quest) and number of contacts (Quantum) award certificates.

To qualify each station must make contact in a video mode (SSTV or FSTV, AM or FM) exchange a personalized Quest number issued to the operator by ATVQ Magazine and exchange video including the Quest number. A log of contacts is submitted for each award.

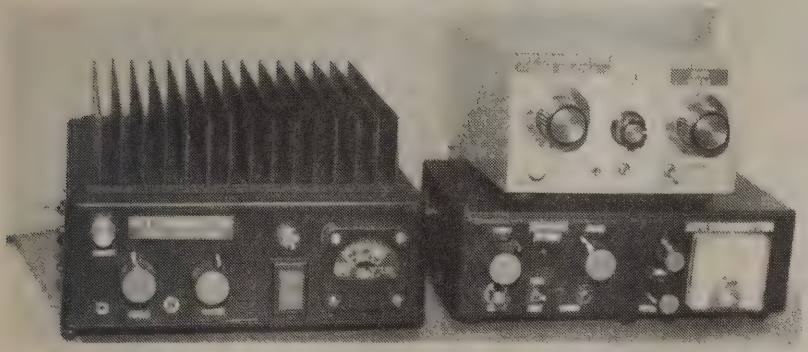
The QUEST award is for DX contacts on 50.1 MHz and above and awarded for contacts made in intervals of 100 miles or more for each level of award. Multiple bands earn multiple points. The Quantum award is for numbers of contacts starting at 20 video QSO's and increasing to 50, 100, 250 and up.

To get a Quest number, application send $2.50 for a full color ATQ Society Quest membership certificate, suitable for framing which includes their personal Q number and call. SWL's are issued a Q call (Q1AA etc). The Award certificates, designed by Tom W9NBG are in full color with custom video graphics suitable for framing. A full copy of the award program and applications are in the October 1993 issue of ATVQ Magazine. You do NOT have to be a subscriber to participate in the award program which is designed to stimulate activity and DX achievements.

FOR MORE INFORMATION CONTACT:
HENRY RUH , KB9FO
ATVQ MAGAZINE

ATV TRANSMITTERS & TRANSCEIVERS

70 Cm. AM VIDEO 10W P.E.P..... $293.00 1 XTAL **PD-ATV-5**
70 Cm AM VIDEO 55W P.E.P..... 530.00 1 XTAL **PD-ATV-50**
70 Cm AM VIDEO 10W P.E.P. with a 1 XTAL,
T/R switched DOWN CONVERTER..... 379.00 **PD-ATV-4**



900 & 1200 Mhz. Transmitters
AM & FM ATV
Outputs vary - depends on model
New!
Call or write for info.

DUPLEXERS
2 Mtrs. - 70 Cm.
LOW LOSS TYPE
0.2db. 2 meters - 0.5db. 70 Cm.

PREAMPLIFIERS
All kinds from 2-30 mhz.
to 2.3 ghz., some T/R
(inquire about our 1.2 ghz. type).

Tower Mounted diecast
125W Capacity
Designed for
Packet FM-SSB-ATV

100 misecs. and 1½ sec. switching.
Magnacraft relays and diode protection.
SINGLE GATE GaAs Fet. transistor.
NF 0.6db. G 16db.
PD-440TR-L (420-450 Mhz.)..... $123.00
Same - Isolator 135.00

TOWER MOUNTED DIECAST
75W capacity. Fast switching.
Special switching and diode protection.
SINGLE GATE GaAs Fet. transistor.
NF 0.6db. G 13-17db.
TPD-900-TR-L (900 Mhz.)..... 179.00
TPD-1200-TR-L (1.2 Ghz.)..... 179.00

Call or write for 18 page cataloge.

PD-144E - (2 Mtrs.) Diecast "BNC" or "SO239"
Nf 0.6db. gain 17-18db..... $47.00

PD-144TR - (2 Mtrs.) Diecast "BNC" or "SO239"
T/R switched 75W "THRU"..... 99.00

PD-144-TR-L (2 Mtrs.) Diecast "SO239"
TOWER MOUNT INC. BRACKET & "U" BOLT.
SPECS: T/R type Nf 0.7db. GAIN 15-16 db.
Separate F/T for Voltage..... 123.00
Voltage feed "THRU" Coax Cable..... 135.00

PD-440-S - (420-450 Mhz.) Diecast "BNC" or "N"
connectors..... 56.00
Nf 0.5db. Gain=16db.

PD-440TR - "N" Connectors only, DIECAST 75W "THRU"
Nf 0.6db. Gain 15-16Db..... 99.00
SAME EXCEPT 20W "THRU"..... 79.00

PD-900 - (900 Mhz.) Diecast "N" Conn.
Nf 0.6db. gain 15db..... 85.00

PD-900TR - (900 Mhz.) Diecast "N" Conn.
Nf 0.7db. gain 14db. Max "THRU" 20W..... 139.00

PD-1200 - (1.2 Ghz.) Diecast "N" Conn.
Nf 0.5Db gain 15db.. TUNED INPUT & OUTPUT..... 85.00

TPD-1200 - Nf 0.38db. gain 16db. Diecast "N" Conn..... 90.00

PD-1200TR - (1.2 Mhz.) Diecast "N" Conn
"THRU" Max 20W Nf 0.7db. gain 15db..... 139.00

PD-2300 - Preamps Nf 0.9db. gain 16db.
TUNED INPUT & OUTPUT. Leads only..... 79.00

VIDEO LINE SAMPLERS - ..... 70.00 & 95.00

Power Modules on P.C. boards inquire..... 35.00 - 150.00

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210 Utica Street Tonawanda, NY 14150 (716) 692-5451

New!

70 CM-4 Frequency Transmitter & P.A. for ATV use

DRIVE THIS SPECIAL POWER AMPLIFIER WITH A 4 CHANNEL CABLE CONVERTER

CH 57 - 58 - 59 - 60

421.25 427.25 433.25 439.25 Mhz.

PD-440NA - Power amp 1 mw=6W output P.E.P.
Size 3½" x 5" with full heat sink, color: blue or black enclosure $179.00
CATV driver Transmitter (4) channel frequency with power supply 140.00
Matching down converter black or blue 88.00
If you have a cable ready TV set use with a preamp rather than investing in a down converter for receive.
The PD-440NA can drive a PD-440N-2R or a PD-440N-3 to a power level of 55W P.E.P.
PD-440NA can be custom built for T/R switching. Call for price quote.

POWER AMPLIFIERS

All of our P.A. have rugged diecast enclosures and full heat sinks. Some are custom built. We sell both features, with or without T/R. We usually request info on duty cycle and drive power requirements. We supply charts and data sheets on each of our units so that specs. may be determined. The charts contain honest information as to the performance of each unit. Power Amps that are rated at 100 watts output will not give the full output on ATV. Poor pix quality plus sync clipping results. A max ATV output would be no better than 45 watts with an average output between 30 and 40 watts of power with good video response.

WARRANTY: 2 YEARS ON LABOR
1 YEAR ON PARTS
6 MONTHS on the power module unless the module has been destroyed by an over-drive condition.

SHOULD THE PRODUCT THAT YOU ORDERED BE OUT OF STOCK THE MAX TIME FOR THE SHIPMENT WOULD BE 10 DAYS.

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2 MTR (144-148 mhz.). Exciter ½-5W=35W FM switched input.
PD-144N T/R RF sensed..... $ 119.00
WITH PREAMPLIFIER..... 149.00

2 MTR (144-148 mhz.). Exciter ½-5W=60W FM, switchable input.
PD-144N-2 T/R RF sensed..... 159.00
WITH PREAMPLIFIER..... 189.00

2 MTR (144-148 mhz.). Exciter ½-5W=40W Linear & FM. Input switched.
PD-144N-1 T/R RF sensed..... 149.00
WITH PREAMPLIFIER..... 179.00

1¼ MTR (220 mhz.). Exciter ½-5W=35W FM, switched input.
PD-220N RF sensed T/R..... 129.00

70 CM (420-450 mhz.). Exciter ½-5W=18W Linear or FM, switched input.
PD-440N T/R RF sensed..... 129.00
WITH PREAMPLIFIER..... 159.00

70 CM (420-450 mhz.). Exciter ½-5W=35W Linear or FM switched input.
PD-440N-1 T/R RF sensing..... 153.00
WITH PREAMPLIFIER..... 189.00

70 CM (420-450 mhz.). ½W=55W Linear or FM.
PD-440N-2 T/R RF sensed..... $305.00

70 CM (420-440 mhz.). 3½W=55W Linear or FM.
PD-440N-3 T/R RF sensed..... 265.00

70 CM (420-450 mhz.). 3½W=60W Linear or FM.
PD-440N-2R NO T/R..... 225.00

23 CM (1.2 ghz.)	1W=18W	PD-1200N	169.00
23 CM (1.2 ghz.)	1W=22W, 2W=36W	PD-1200N-1	296.00
23 CM (1.2 ghz.)	10mw=18W	PD-1200N-5	275.00
33 CM (900 mhz.) AM	1-5mw=8-10W	PD-33VLP-1	125.00
33 CM (900 mhz.) FM	1mw=1.5-2.0W	PD-33VLP-2	119.00
33 CM (900 mhz.) Lin.	1W=18W	PD-33LHP	265.00
33 CM (900 mhz.) Lin.	½W=6W	PD-33LP	135.00
33 CM (900 mhz.) Lin.	6W=18W	PD-33HP	139.00
33 CM (900 mhz.) FM	1W=20W	PD-900N-1	129.00
33 CM (900 mhz.) FM	180mw or 1W=10W	PD-900N	65.00

Many others to choose from, some T/R.

2.0 Mhz. to 30 Mhz. H.F. Power Amplifiers broad banded types. MWT Slam Devices used (solid state linear amp. modules). Call for information.

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NEW!! COLOR SLOW SCAN TV for the Sound Blaster!

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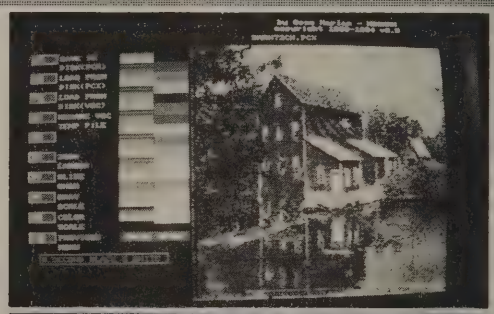

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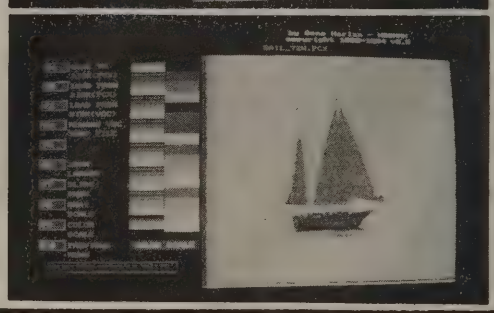

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AMATEUR TELEVISION QUEST AWARD PROGRAM

ANNOUNCING THE FORMATION OF THE ATQ SOCIETY.

Over the span of several weeks in July and August 1993 , a number of QSO's on the local repeater have centered around getting more ATV activity going. From the group sprung several ideas. Tom W9NBG, a Des Plaines ATV'er provided an outline and drawing which have inspired the Q awards. These are designed to loosely follow the WAS (Worked ATV Stations) (Quantum) and DXCC (Quest) awards. The system resembles the SWOT and SMIRK VHF programs in operation. The program is sponsored by ATVQ Magazine, but the participants do not have to be subscribers.

QUANTUM AWARD

It is not possible to work ATV stations in all 50 states from a single ation. So to provide a similar award program, the Quantum award is for S (Worked ATV Stations). The ATV station contacts other ATV stations, hanges Quest numbers (Q number) in VIDEO only, and gets 1 contact nt. Thus a sync bar signal is NOT good enough to qualify as a contact. A video exchange must take place. The station may use simplex, ATV eaters, or a one way reception of, for example, an ATV Balloon, or other ne/beacon signal. The repeater station does NOT count as a contact.

Because ATV activity is in clumps, groups of stations in an area, ally separated by vast spaces to the next group, ie Kansas City does not ularly contact St. Louis, there is a limit to the number of "local" contacts a ion could make, normally limited by the number of active stations in the a. This would seem to give big cities an advantage over small towns. To n the playing field, a station can operate portable, mobile or otherwise, 25 es away from the stations normal fixed QTH and count as a second station.

Example: Station A5TV contacts N5TV and both operate from their home QTH. They exchange Q numbers and each gets 1 point. A5TV now goes to a point 25 miles away from his home QTH and again works N5TV. Again Q numbers are exchanged and both get another point. N5TV now goes to a place 25 miles from his home QT and works A5TV again. They exchange Q numbers in video and get a third contact point. There is no limit to the number of locations except each must not be closer than 25 miles from any other point used previously. Thus you could locate a number of points at 25 mile intervals in the same direction or in a grid to achieve any number of possible contact points. This allows for portable or mobile operation anywhere!

AWARD LEVELS

A Certificate suitable for framing will be awarded each station which has succeeded in contacting the following number of ATV stations: 20, 50, 100, 250, 500, 750, 1000. Higher levels in increments of 250 will also be awarded. Multiple bands count as separate contacts!

QUEST AWARD

In addition to working a number of stations, it is thought that there should be a form of DXCC to recognize DX achievements in video. This award is based on distance in 100 mile increments. The award will recognize 2-way video contact made as described in the QUANTUM award. To qualify the ATV station contacts another ATV station, exchanges 2-way video and Q number. If the station is more than 100 miles distant, the stations qualify for the ATVDX-I award (100 miles), likewise for 200, 300, 400 ... up to 1,000 miles for ATVDX-X. and higher awards as necessary for longer distances. Multiple bands are recognized as separate contacts.

JOINING ATQ SOCIETY

Any ham or SWL may join ATQ Society. Each member receives a full color certificate of membership suitable for framing. Each certificate has a personal Quest ID number, which is used in the exchange of video contacts with other ATQ members. Each member's number is unique and only issued once. Subscribers of ATVQ Magazine **who have their ham call on file** will receive their certificate automatically. Otherwise they must comply with the non subscriber application. Non ATVQ Subscribers may send $2.50 in stamps or cash or check to cover the cost of printing the full color certificate and mailing.

In return mail each applicant will receive their handsome full color certificate (as shown on the cover of this issue) on 11 x 8.5 heavy certificate stock, printed with their call letters and personal Quest number. (Better than most ARRL awards!) Non hams (SWL's etc) will be issued the same certificate but will have a Q call sign assigned in place of the ham call letters. For example Q1AA, etc for each call district.

APPLYING FOR AWARDS

Upon reaching each plateau, an ATV station may apply for the appropriate award. A log should be submitted to ATVQ Magazine with the following information:

The call, name, address and Q number of the applicant.

Listing of the name and call and Q number of each contact, date and time of each contact and band on which the contact is made.

Enclose $3 per certificate to cover the cost of color printing and postage in stamps or cash.

By return mail the applicant will receive the certificate for which qualified. In some instances verification will be made to keep things on the up and up.

STARTING DATE

To give everyone an equal footing, the start date for any qualifying contacts is Oct 1, 1993. Only contacts made after this date qualify for the awards.

THE RULES

1. Become a member of ATQ Society.
2. Obtain membership Q number.
3. Exchange the Q number only in VIDEO MODE (never voice or other method).
4. AM or FM video may be used.
5. Any ATV mode may be used INCLUDING SSTV or FAX.
6. Modes should be kept separate. Awards will be made for each mode and each band on which qualified. (ie 20 contacts on 440 MHz FSTV, 20 contacts on 1255 MHz in FM mode FSTV, 20 contacts on HF in SSTV, etc).
7. The highest award made in each category will be published regularly and top winners will be honored art Dayton Hamvention each year.
8. Don't cheat! It only lowers the value of the award you pin on the wall.
9. Make a separate application for each award certificate.
10. HAVE LOTS OF FUN!
11. Quantum awards may be qualified on any ATV band and any VIDEO mode. (RTTY and PACTOR pictures DO NOT COUNT!)
12. QUEST awards are only for contacts above 50.1 MHz. (SSTV on 6, 2, 220) FSTV/SSTV on 420 MHz and above.
13. Repeaters may NOT be used for DX awards (Quest), only direct contacts.
14. SWL contacts count as 1 point for each station received. Hams who "intercom" in voice and receive only on video may count 1 point per station.
15. Balloons and other non terrestrial stations count towards Quantum and Quest awards as 1 point.
16. Satellite (OSCAR) contacts count for QUANTUM but not QUEST awards.
17. HAVE MORE FUN!
18. Do not send QSL's, video tapes, photos unless you want them used in ATVQ magazine writeups (much appreciated). They are NOT necessary for awards but make good reading!
19. Clubs may participate as club stations.
20. Recruit other ATV stations to become Quest Society members and expand the possible Q number list!

For further information contact ATVQ, 3 N Court St., Crown Point, IN 46307

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Antenna, Model 2XY-137-c	$99
Low Noice Pre-amplifier, Model TS-137-P.Amp.	65.00
137 MHz scanning receiver, Model TS-137-Rcvr.	299.00
Orbit Prediction Programme, Tract II	99.00
Low Loss Coaxial Cable, 65 ft. with connectors fitted	65.00
(longer lengths at $1/ft. extra)	$627.00
1691 MHz Receiving Sub System:	
Loop-Yagi Antenna, Model 1691-LY(N)	$99.00
Low Noise OaAs FET Pre-amplifier, Model TS 1691-HEMT	$250.00
1691 MHz Receiver, Model TS-1691-Rcvr.	450.00
Low Loss Coaxial Cable, 65 ft. with connectors fitted (longer lengths at $1/ft. extra)	65.00
	$864.00

The cost of a complete 137 MHz system is $976 ($349 + $627)
The cost of a complete 1691 MHz system is $1213 ($349 + $864)
The cost of the two systems together is $1840.

Demonstration Disc (IBM-PC VGA Compatible) of Signals recorded from wx-sat System are available for $3.
Shipping: FOB Concord, MA.
Prices subject to change without notice.

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VISA

IMPROVING IMPEDANCE BANDWIDTH OF VHF/UHF YAGIS BY DECREASING THE DRIVEN ELEMENT L/D RATION

The antenna literature hints that increasing the element diameter in a Yagi improves its impedance bandwidth (see, for example, [1] at page 11-15). But the author is not aware of data showing what degree of improvement can be obtained. This tech note describes the effect of increasing driven element diameter and presents results for a typical three-element array. While the technique is frequency independent, it is especially useful for antennas from mid-VHF through UHF.

Fig.1 shows typical Yagi geometry. The antenna consists of parallel elements spaced along the array axis. The RF source excites the driven element (DE), which is usually a centre-fed dipole as shown (length L, diameter D). Other DE configurations, such as folded dipoles, are sometimes used, but they are not considered here. On one side of the DE is a longer element (R) which acts as a reflector. On the other side are shorter elements (D1...DN) which act as directors. The reflector and directors are parasitic elements.

In most Yagi designs all elements are the same diameter, and they are electrically thin. Thin elements have L/D>1. Elements that are not thin are fat. Thin and fat elements have different current distributions. The current along a very thing element is nearly sinusoidal, but this approximation becomes progressively worse as the element becomes fatter.

An element's self impedance is determined by its free-space current distribution, which varies considerably with the L/D ratio. A Yagi's input impedance is determined by the DE self impedance and its mutual impedance

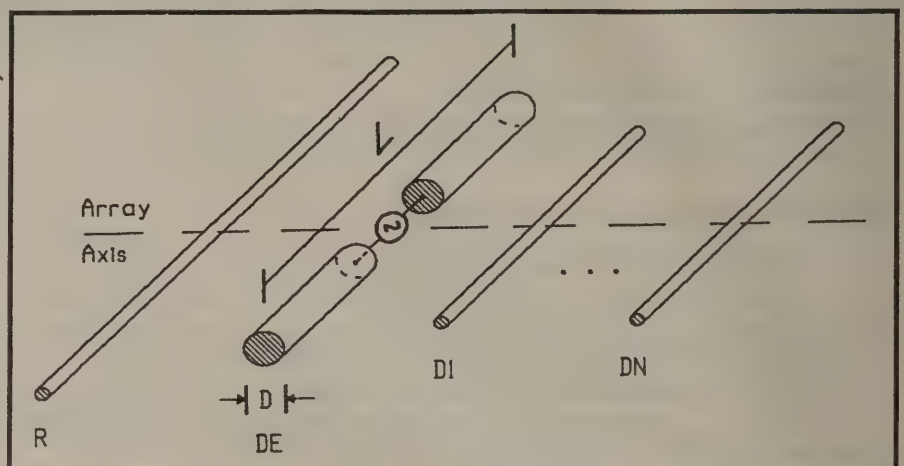

Fig.1: Yagi Array Geometry

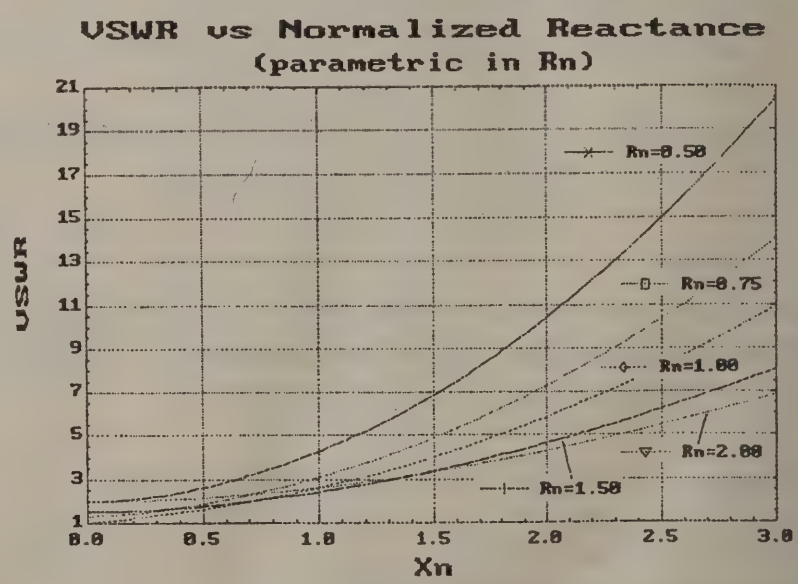

Fig.2: VSWR vs Normalised Reactance

with every other element in the array, but the DE's influence is dominant. The design objective is to increase bandwidth by adjusting the DE self-impedance to improve the match to the feed system characteristic impedance.

The conjecture that changing the DE's L/D ratio can significantly alter a Yagi's input impedance rests on the following observations:

- the input resistance of well-designed Yagis is usually lower than 50 , often by quite a bit
- in general, VSWR increases more quickly with load reactance when the load resistance is less than the feed system characteristic impedance
- the radiation resistance of a centre-fed dipole passes through a maximum as it L/D ratio decreases

Low input resistance is apparent from published Yagi design data (see, for example, [1]-[5]). The other two observations are discussed below.

Fig.2 plots VSWR vs the magnitude of the normalised load reactance. Several curves are presented for different values of normalised load resistance. Xn and Rn are calculated by dividing the load reactance and resistance, respectively, by the feed system characteristic impedance, Z0, which is assumed to be purely resistive. In most antenna systems Zo=50+j0 . In a 50 system, an actual load resistance of 25 is a normalized resistance Rn=0.50 (top curve in Fig.2). A load reactance of 125 ohms (Xn=2.5) produces a VSWR of 15. Note that only the magnitude of the reactance is important, not its sign (inductive or capacitive).

It is evident from Fig.2 that VSWR is more sensitive to increases in Xn when Rn is low. For example, increasing Xn from 2.5 to 3 causes the VSWR to go from 15 to 20.5 when Rn-0.5, but only from 5.6 to 6.9 when Rn=2. Because of their low input resistance, Yagis tend to exhibit this sort of VSWR sensitivity. It is reasonable to expect that a DE which increases the Yagi radiation resistance will improve performance by reducing VSWR sensitivity to input reactance. The initial design objective in selecting a better DE configuration is therefore to maximise its radiation resistance.

The self-impedance of a centre-fed, free space dipole is plotted as a function of diameter in Figs. 3(a) and 3(b). The input resistance appears in Fig.3(a). The different curves are for different element lengths as indicated. The dipole diameter varies from zero (infinite L/D) to 0.1 (4.5 <U> L/D <U> 5.0). Note that L and D are in wavelengths. For 0.45 <U> L <U> 0.50 wave, the resistance increases until the diameter is near 0.05 wave,

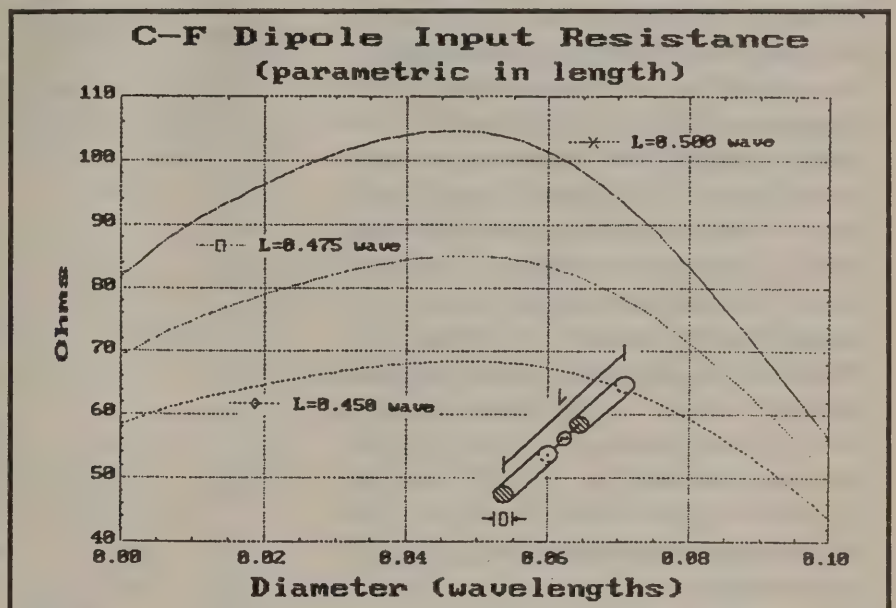

Fig.3a

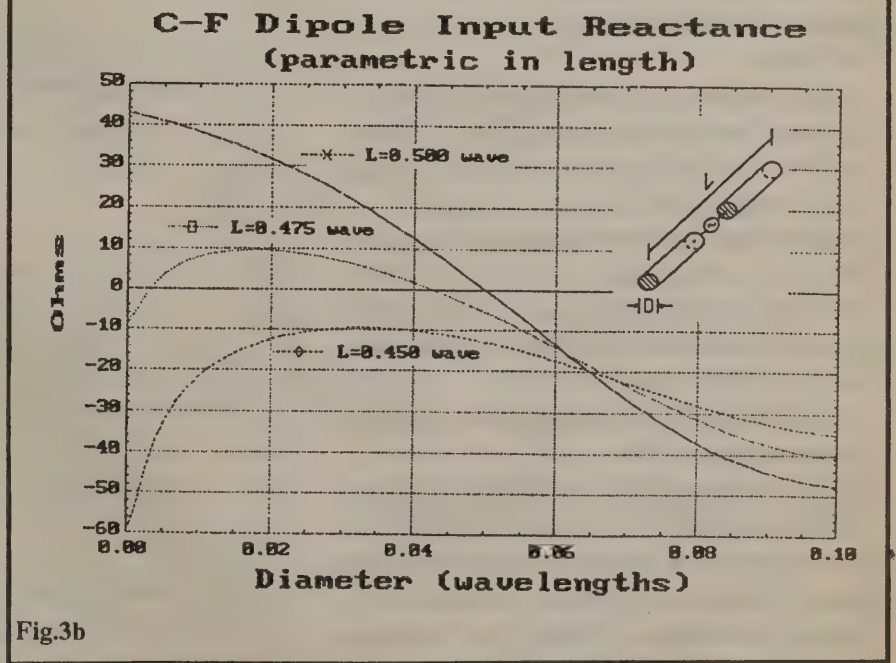

Fig.3b

then it decreases. The maximum resistance for a fat dipole is considerably higher than it is for a very thin one, which is important in trying to increase the Yagi's input resistance.

Fig.3(b) plots the dipole's input reactance. A half-wave dipole is inductive for very small diameters, passes through resonance near 0.05 wave, then becomes capacitive. The 0.475 wave dipole shows two resonances, one near a diameter of 0.003 wave, and the other near 0.043 wave. The shortest antenna (0.450 wave) is always capacitive. How the reactance changes with diameter is important determining the DE resonant frequency; but resonating the DE is not a primary objective at this point.

The effect of L/D on input impedance was investigated by modelling a well-designed, three-element Yagi with thin and fat DEs. The original antenna with the thin DE is referred to as the 'prototype". It consisted of a 0.479 wave reflector, a 0.453 wave DE, and a 0.451 wave director. Each element was 0.005 wave diameter. The three elements were uniformly spaced 0.5 wave along the array axis. This antenna is described in [3], Tables 5-4.

The modified prototype is referred to as the "improved" array. The only difference between the two antennas is the DE diameter, which was increased to 0.0486 wave (L/D=9.3/90.6, improved array/prototype). This diameter was chosen because it maximises the self resistance of a 0.453 wave dipole (70.23). Other diameters could also be used, since the resistance is not particularly sensitive to changes in diameter between about 0.04 and 0.055 wave.

Prototype antenna performance is shown in Fig.4, and the improved array in Fig.5. The x-axis is the ratio of operating frequency to the design frequency, Fo.

The prototype forward gain and FB ratio are plotted in Fig.4(1). Maximum gain is 9.56dBi at 0.991Fo. The improved array's gain and FB curves are so close to those in Fig.4(a) that they are not reproduced.

Increasing the DE diameter does not affect maximum gain or FB.

Input resistance (R), reactance (X), and VSWR (relative to 50 ohms) appear in Figs.4(b) and 5(a), which should be compared directly. The most important differences are the improved antenna's higher input resistance (55.9 vs 22.34) and its substantially smaller VSWR variation (1.8-5.7 compared to 2.46-10.7). The improved array's VSWR is much easier to match than the prototype's, which should result in better impedance bandwidth.

Since both antennas are inductive at the design frequency (X=14.479.9 , prototype/improved array), the simplest matching scheme is to add capacitive reactance to resonate the antenna at Fo. For convenience, it is assumed Fo=299.8 MHz (1 meter wavelength). If series capacitors are used, then the

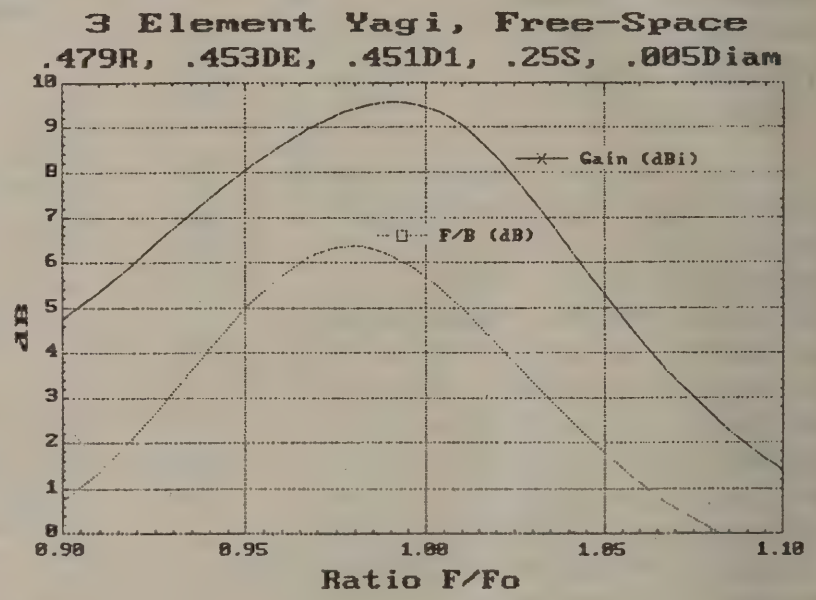

Fig.4a

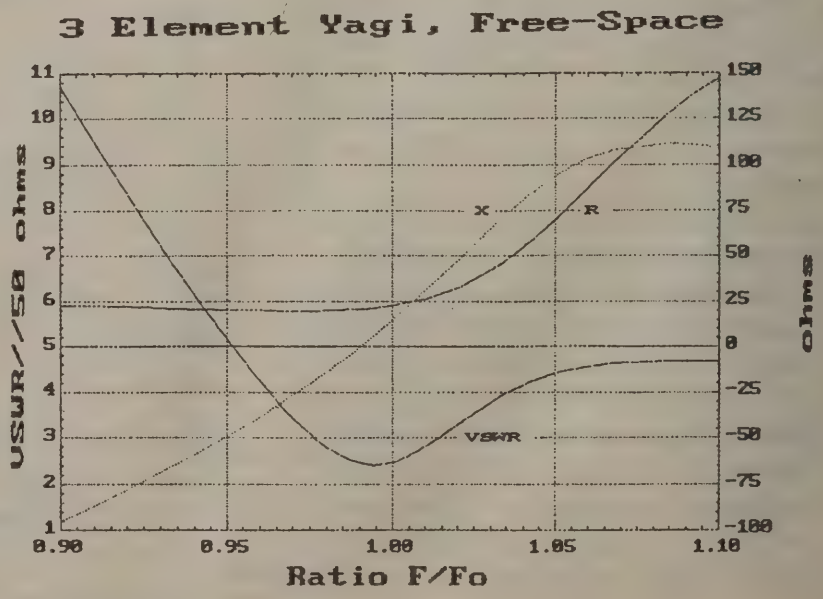

Fig.4b

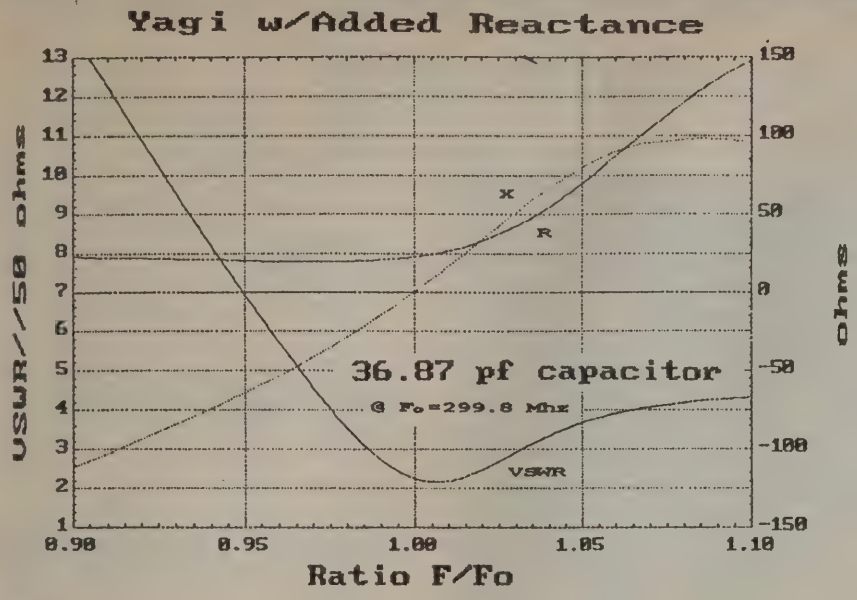

Fig.4c

total required capacitance is 36.87pF for the prototype and 6.34pF for the improved array. The effect of adding series capacitance is shown in Figs. 4(c) and 5(b), which should be compared directly.

Note: The details of how reactance is added at the feed point are not considered. A capacitor is the simplest way to add capacitive reactance, but not the only one. Whatever approach is taken, feed system symmetry must be preserved in order to avoid unbalancing the antenna.

The minimum resistance is similar in both designs, but R increases more quickly and reaches higher values in the improved array. This effect is actually beneficial because of the VSWR behavior discussed in connection with Fig.2. Maximum resistance in the improved Yagi is about 280 near 1.05Fo.

The series capacitors bring both antennas into resonance (X=O) at Fo=299.8 MHz. The prototype's VSWR is 2.24 at the design frequency, and its minimum VSWR is 2.16 at 1.007Fo. The reason the VSWR is not better than 2.24 at Fo is that the input resistance is still low compared to the feed system impedance of 50 . Comparing the prototype's VSWR with and without added reactance shows that the improvement is only marginal.

Fig.5(b) shows that the fat DE provides much better performance. The VSWR is only slightly above 1:1 at Fo, and it is below 2.5:1 from 0.981Fo to 1.014 Fo, an impedance bandwidth of 3.3% of Fo.

The improved antenna's VSWR is better at Fo because its resistance is close to the feed system characteristic impedance of 50@@. Thus, the larger DE diameter increases the array's radiation resistance as expected. Matching the improved antenna is simply a matter of neutralizing its input reactance.

There are several matching techniques not considered here which can improve the VSWR even more. The simplest is to adjust the DE L/D ratio so that both the radiation resistance is as close as possible to 50 and the array is resonant at Fo.

Matching networks, impedance matching feeds such as a T-match, or antenna tuners are some of the other possible techniques for improving impedance bandwidth.

These methods work best with a Yagi whose VSWR has already been lowered using the L/D technique. The data in this tech note provide a starting point for further experimentation and illustrate the degree of improvement attainable with a fat driven element.

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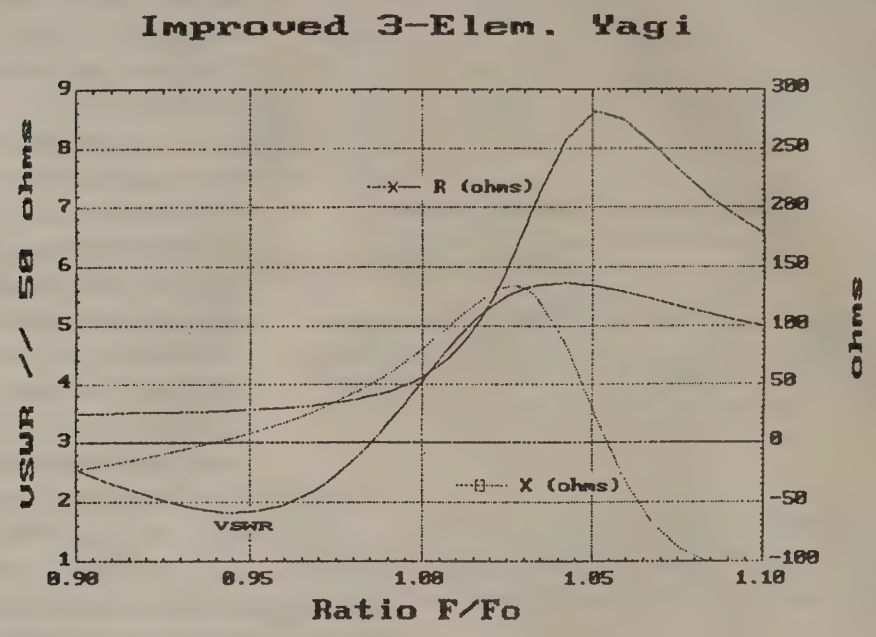

Fig.5a

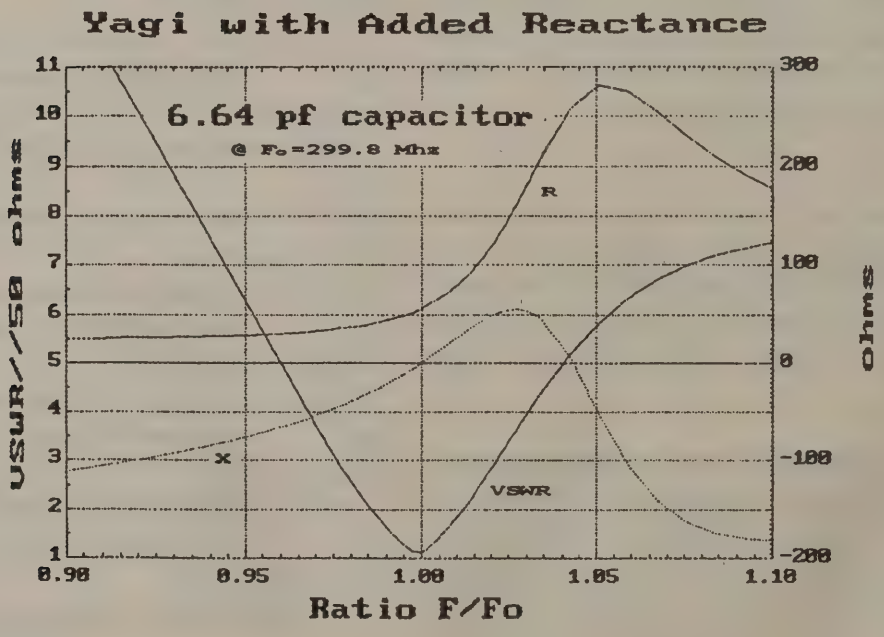

Fig.5b

FromVHF Communications Magazine, Volume 26, autumn

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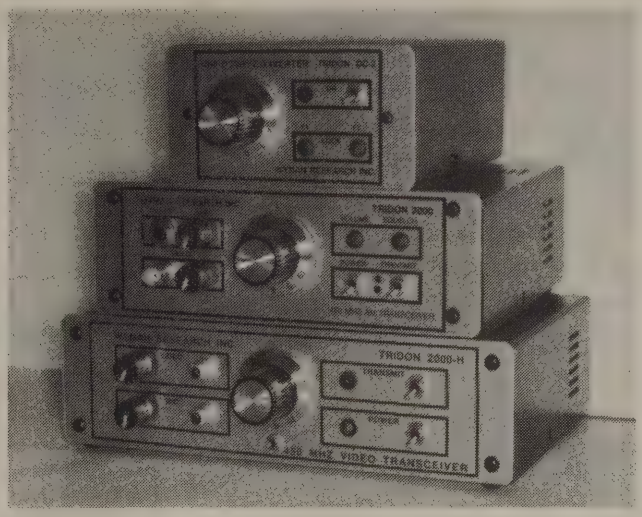

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A TRUE RF S METER FOR ATV

After using the Agc voltage on my TV set (VCR) and a voltage amplifier/meter for an S meter, on my station for a while, it didn't take too long to find out that it was not very reliable when tuning the local repeater, or any local station, on in the area for maximum strength signal when aiming my antennas.

I decided that there must be a better way. After using my Satellite Receiver with a true RF S meter for 1258 FM TV and seeing how well I was able to aim my antennas and rely on the S meter reading for best signal strength - out came the diagram of the receiver, this is the end result. See figure 1.

Figure 1 shows the block diagram of the simple system. The signal coming from the antenna system goes into my Down converter, the regular way the output Ch 3 goes into a VHF Amp. to boost the signal on the meter, (it will work without the amp. but the indication on the meter will be low). Then using the usual cable TV Splitter Combiner, in this case 2 Set Coupler, split the signal 1 output to your TV set, the other to the amplifier/meter. See figure 2.

Now you really have a True RF S Meter like any other receiver. 73's Manny Diaz WB2LTS

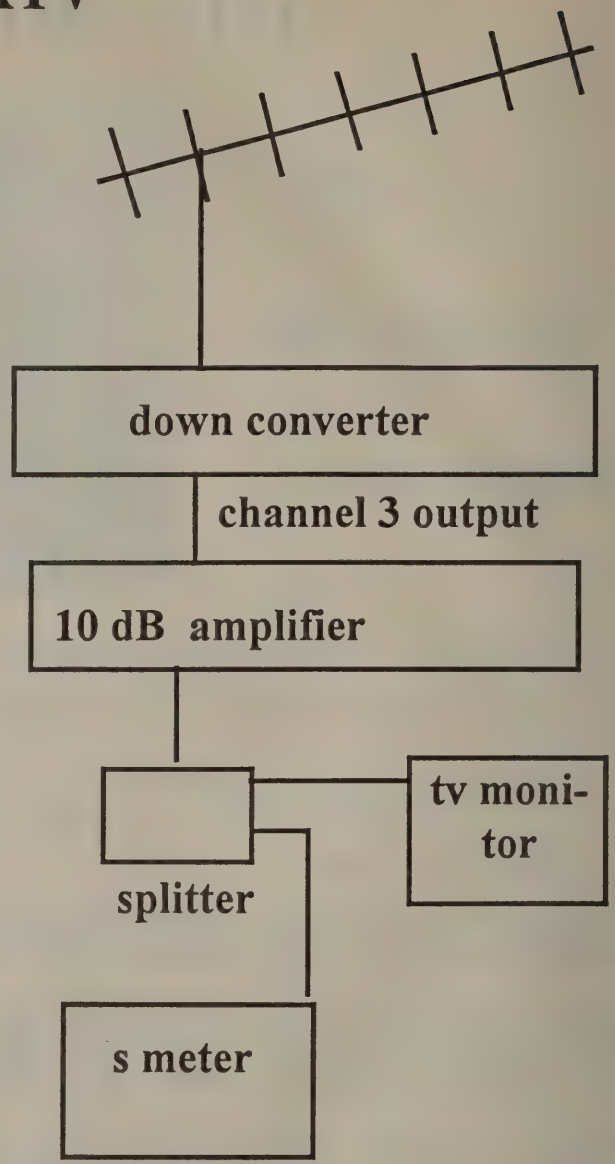


FIGURE 1
BLOCKDIAGRAM

amplifier: Radio Shack
splitter: Radio Shack

A TRUE RF S METER FOR ATV

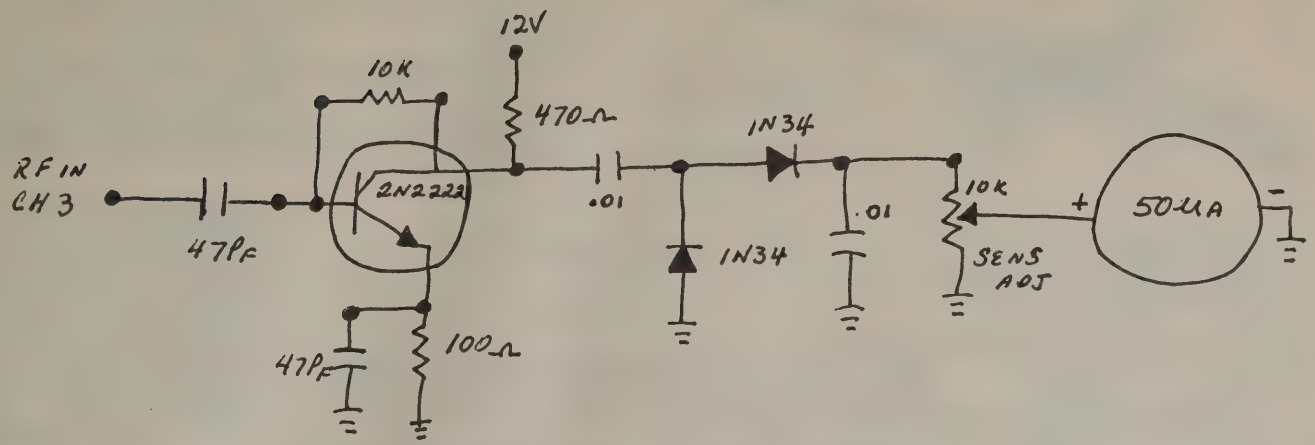


FIGURE 2

BUILDING AND USING BALUNS AND UNUNS RELEASED BY CQ

(Hicksville, New York) -- Every active ham needs an antenna and a way to move signals efficiently between the antenna and the radio. Matching the transmission line to the antenna has been a topic of endless discussion and debate. Now Jerry Sevick, W2FMI -- *the* authority on transmission line transformer theory -- unravels the mysteries in *Building and Using Baluns and Ununs -- Practical Designs for the Experimenter.*

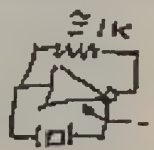
Building and Using Baluns and Ununs, newly published by CQ Communications, Inc., is the definitive source for Sevick's latest practical information and designs. This book provides a unique opportunity to learn about the application of baluns and ununs for dipoles, Yagis, log periodics. Beverages, antenna tuners and countless others. (For the *non*-experimenter who may be reading this, a *balun* is a transmission line transformer that connects between a *bal*anced antenna -- such as a dipole -- and an *un*balanced feedline -- such as coaxial cable; and an *unun* goes between an *un*balanced feedline and an *un*balanced antenna.

Jerry Sevick is renowned for his work on transmission line transformers, antennas and matching networks. His work on baluns and ununs has been adopted as a standard by the IEEE; and his 1978 *QST* article on short ground-radial systems serves as the world standard for earth conductivity measurements. He is author of *Transmission Line Transformers* (ARRL), a series on baluns in *Communications Quarterly* and a series on ununs in *CQ*.

Building and Using Baluns and Ununs retails for $19.95 and is available from many ham dealers or may be ordered directly from the publisher at 1-800-853-9797.

TECH NOTE FOR ATV'ERS . . .

The 74AC14 Hex Inverter IC will work as an overtone crystal oscillator to >110 MC. Connect as shown below:



Many odd harmonic frequencies are possible x3, x5, x7, x9, x11. The multiplied output freq does not necessarily equal an even multiple of the marked frequency. ATV crystals at 106 and 108mhz oscillate at their marked values. A 10mhz xtal produced 110mhz.

I do not have a 48mhz crystal to try for a third harmonic 144mhz oscillation. Perhaps you do . . . try it! Ray N6RE P.S. What to do with the 5 remaining stages?

FromATN Newsletter,TNX

Here are some of the notes that pass across my computer screen from America ONline.

ATVQ on America online

REACH ATVQ VIA E-MAIL from any computer service : ATVQ @AOL.COM.

Measuring quality of ATV reception.

From: steve@media.mit.edu (Steve Mann)

I am interested in experimenting with an ATV diversity receiver, and so I thought I'd begin with switched spatial diversity, wherein I'd select the best signal from two complete ATV receivers, using a binary decision process.

It appears that the quality of TV signal reception is measured in many commercial products, even just home TVs, because when the signal is weak,the screen turns blue, instead of displaying the traditional "snow" that you used to see on the older TVs.I am interested in simple ways I can detect the presence/absense of a video signal, and perhaps later also measure the quality of the signal, irrespective of the signal content. My guess is there must be something in the receiver that operates like a squelch in an audio receiver. For example, my HT has a green LED that indicates when the squelch is broken. The squelch itself is sort of like an ``audio quality'' threshold, and seems analogous to the blue screen on the TV when the signal is weak.

In the case of the TV, it is my belief that it is possible to detect quality at the baseband video level, not just the RF level. For example, if I play a VCR into the baseband video input, I get bluescreen on blank parts of the tape. This phenomenon seems unique to video, because audio squelch must happen at the RF level, otherwise it would squelch out silence and behave more like a VOX circuit or "noise gate" than a squelch.

I am interested in anything people might have done to detect presence/absense or measure quality of ATV reception, particularly simple "hacks" that don't involve a lot of messing around with the RF section e.g. simple circuit to detect sync?

Measuring quality of ATV reception.

From: stevem@w6yx.stanford.edu (Steve Muther)

Reply-to: A simple circuit to detect sync is the National LM1881 IC. It will output pulses in H, V and field timing references. I think a neat idea would be to determine the signal to noise ratio on an unused line during the vertical blanking interval. You could use a device like the 1881 and some additional logic to isolate the desired line. Steve Muther WF6R stevem@w6yx.stanford.edu

Subject: CQ Beomes Young Ham Award Co-Sponsor

From: Richard Moseson)CQ - THE RADIO AMATEUR'S JOURNAL
Mailed: February 14, 1995

CQ BECOMES "YOUNG HAM OF THE YEAR AWARD" CO-SPONSOR (Hicksville, New York) — "CQ The Radio Amateur's Journal" is joining with Yaesu USA as a corporate co-sponsor of the "Young Ham of the Year Award," now being administered by the Amateur Radio Newsline. The award to outstanding young amateurs has been presented annually since 1986."We view

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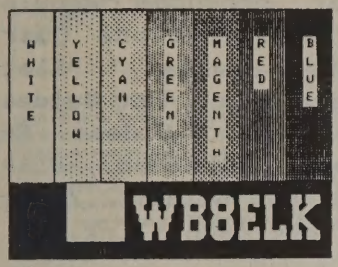

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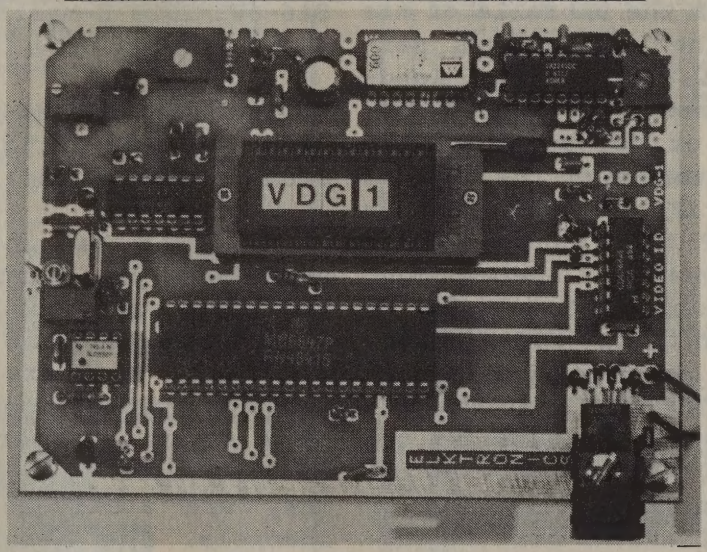

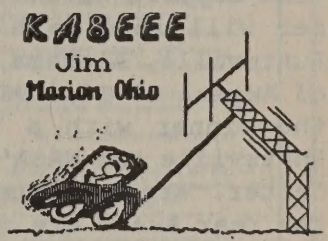

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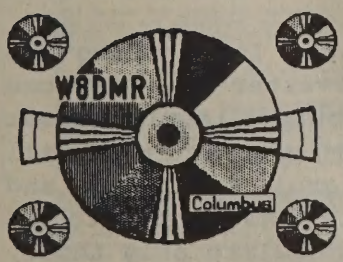

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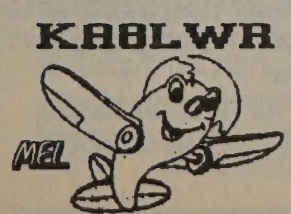

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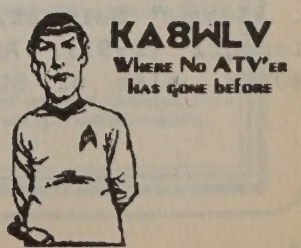

this award as an excellent opportunity to encourage young people in amateur radio," says Publisher Richard Ross, K2MGA, "and to show them that you don't have to be an 'old-timer' to make a significant contribution to the hobby. We are pleased to be able to add our support to keeping this award alive." The Young Ham of the Year Award was originated in 1985 by Bill Pasternak, WA6ITF, who was then editor of the weekly "Westlink Report." It has continued under Westlink's sponsorship until the newsletter ceased publication in early 1995. Pasternak then brought the award under the umbrella of his "Amateur Radio Newsline" audio news service. Yaesu USA will continue its long-time support of the award. This year's winner will receive his or her award at the Huntsville, Alabama, hamfest on the weekend of August 18-19, 1995. CQ will be providing the winner with a VIP tour of Spacecamp/ Huntsville and NASA's Marshall Space Flight Center. Nominations for the Young Ham of the Year Award are open to any FCC-licensed ham radio operator aged 18 and younger, living in the United States, who has used Amateur Radio to significantly contribute to the benefit of the service, to the state of the communications art, to their community or to the nation. All nominations must be submitted before June 30, 1995 on an official application available for a self addressed stamped envelope. Write to: 1995 Young Ham of the Year Award, c/o Newsline, 28197 Robin Avenue, Saugus, California 91350. Official applications are also available electronically with an E-Mail request to: BILLWA6ITF on America Online; B.PASTERNAK on GEnie or billwa6itf@aol.com via the Internet. Past recipients of the Young Ham of the Year award include ShawnAlan Wakefield, WK5P, of Bartlesville, Oklahoma (1986); David Rosenman, KA9PMK, of Muncie, Indiana (1987); Jonathan Binstock, NK3D, of Potomac, Maryland (1988); Erin McGinnis, KAOWTE, of Topeka, Kansas (1989); Mary Alestra, KB2IGG, of Staten Island, New York (1990); Richard S. "Sammy" Garrett, AAOCR, of St. Louis, Missouri (1991); Angela (Angie) Fischer, KBOHXY, also of St. Louis (1992); Kevin Boudreaux, N5XMH, of New Orleans Louisiana (1993) and Allison Zettwoch, KD4CKP of Louisville Ky. (1994). "CQ The Radio Amateur's Journal," celebrating its 50th anniversary during 1995, is the flagship publication of CQ Communications, Inc., which also publishes and/or produces "Popular Communications," "Communications Quarterly," "MicroComputer Journal," "Electronic Servicing & Technology," CQ Guides, Pop'Comm Guides, CQ Books & Videos. For More Information, Call: John Dorr, K1AR, Director of Marketing 516-681-2922 / Fax: 516-681-2926 E-mail: p00259@psilink.com

Subject: Re: ATV Modulators...
Date: 94-11-21 15:42:01 EST
From: fkf1@cornell.edu (F. Kevin Feeney)

For background, I have no ATV experience yet, just a growing interest. As I have built our home cable TV system, I've been looking into the baseband modulators that are available. They take audio and video signals from a source such as a security camera, VCR, or satellite receiver, and turn it into an RF signal. They are available for UHF and cable channels. The less expensive ones are analog tuned, the more expensive ones are digital and even have stereo audio inputs.Could these be a feasible way to generate an ATV signal? I have no idea if they are DSB or VSB. I guess it would take a lot of amplification to get the signal level high enough.

Yup. In fact I'm hoping to breadboard up a transverter for one some time this winter. The output level is about right to run into a DBM, the hard part will be getting a good LO signal. Then filter and amplify. Not as efficient as Class-C to the driver and final and modulate only those, but not bad. Anybody else looked into this? 73 de Kevin, WB2EMS F. Kevin Feeney Network Video Engineer 172 Caldwell Hall Cornell University Ithaca, NY 14853-2602 Phone - (607) 255-5186 FAX - (607) 255-5771 EMAIL - fkf1@cornell.edu

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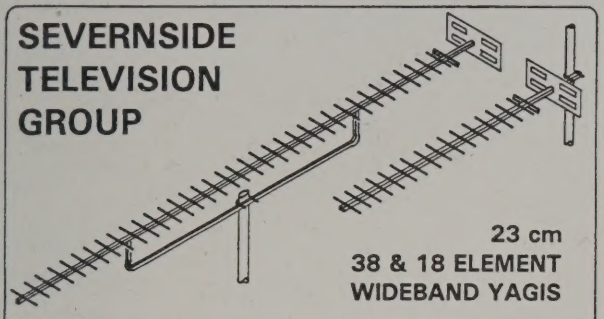

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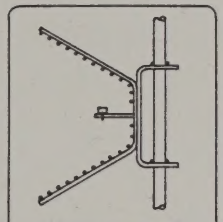

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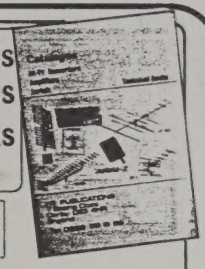

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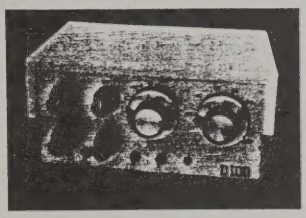

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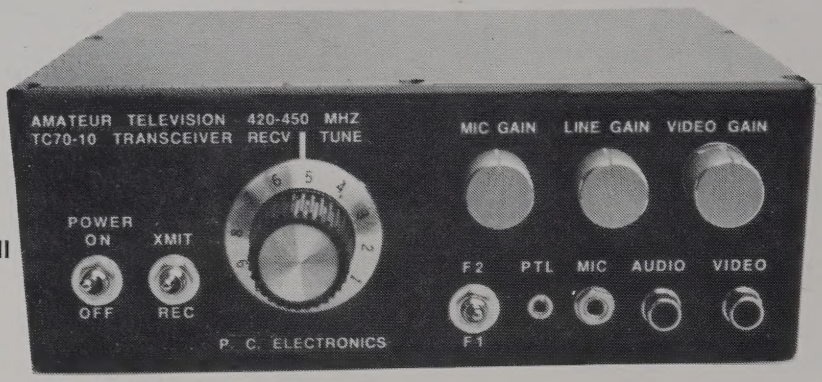

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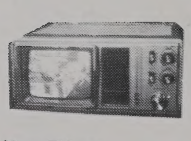

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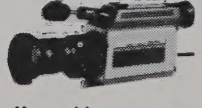

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